



Assessing the Impact of Microenterprise Services (AIMS)

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ALTERNATIVES FOR MEASURING PROFITS AND NET WORTH OF MICROENTERPRISES

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EXECUTIVE SUMMARY

Purpose of the Paper

The purpose of this paper is to propose alternative measures of microenterprise profits and microenterprise net worth and to develop a field plan to test these alternatives. Because full measures of profits and net worth are very difficult and expensive to collect, donors and practitioners tend to look for proxy variables, such as changes in sales revenue or changes in the value of fixed assets, as an easier way to assess the impact of microenterprise support programs. While these measures offer some indication of the changes in an enterprise's status, profits and net worth are much better indicators of enterprise growth and stability. Because they are better indicators, the proxies proposed in this paper are based on actual measures of profits and net worth with varying degrees of complexity.

Definition of Profits and Net Worth

Accounting profits are defined as revenues minus explicit costs. Economic profits use this same measure, but subtract implicit costs as well. Although these definitions seem straightforward, the review of the empirical literature found that there were over twelve methods used to define and estimate profits. The simplest measure is to ask the proprietor how much he or she makes after deducting costs. The more complex measures estimate depreciation and deduct this from revenue along with other operating costs. Net worth is defined as enterprise assets minus enterprise liabilities at one point in time.

Problems with Measuring Profits and Net Worth

Profits and net worth are typically omitted from studies due to numerous measurement difficulties. First, the lack of written records and recall difficulties lead to poor estimates of profits and net worth. Fungibility is also a serious problem, since most enterprises are operated from the home and separate accounts are not kept for the business and the household. Seasonality of business activities, as well as fluctuations in income for other reasons such as drought or family problems, make it difficult to measure profits over the course of a year. Probably one of the most difficult problems encountered in measuring profits and net worth is the sensitivity of these topics. Proprietors may not be willing to cooperate if they think the information may be turned over for taxation purposes or they may not want anyone to know how much they earn in general. Finally, analytical problems and issues related to the questionnaire design pose problems for data collection on profit and net worth. For example, decisions about depreciation or the value of family labor must be made during the analysis process. Also, more complete measures of profits or net worth require more information and thus a longer questionnaire. As the length of the questionnaire increases, the sample size must be reduced or the research budget must be increased.

Review of Empirical Studies

There are four key components of profits that are typically measured in empirical studies: sales, labor costs, other operating costs, and depreciation of fixed assets. The review showed that there

were nine different methods to measure sales. Asking the proprietor about sales last month is the quickest method to estimate sales. This may not be reliable, however, since it does not address seasonality. Also, it does not allow the proprietor to estimate sales based on his or her own time reference period. The slightly more complex methods ask for sales estimates in high, low, and average months and the number of months for each level of sales.

Most studies estimated labor costs by asking for the amount paid out in wages in the last month prior to the survey. This method is simple; however, it does not address seasonality and it may be very inaccurate due to recall problems. In the most complex method, each worker was listed along with his or her hours worked, activity, and wages in cash and in-kind.

The most common method to estimate other operating costs was to provide a list of expenses and ask the proprietor how much she paid last month or some other specified time period. Two studies developed a section for traders that looked at trading margins for the top revenue-generating products.

There were several methods for measuring and depreciating fixed assets. In some cases, a list of items was read to the proprietor and he or she was asked for the price if the item were to be sold today. In other cases, data were collected on the year of purchase and the original price, which was then inflated to current prices. In all cases, the current value had to be depreciated based on some assumed rate of depreciation.

To fully measure net worth, information on current assets, fixed assets, and outstanding loans or debts must be collected. While there were no studies that attempted to measure all of the components of net worth, some studies measured one or more components.

To measure inventory, a component of current assets, two surveys asked for the value of finished products and raw materials. Savings associated with the business were omitted from most surveys since it is a sensitive topic and most proprietors do not keep separate accounts for their businesses. Two studies avoided these problems by asking how much cash the business has today or how much could it invest if it had a good opportunity today. Debts and accounts receivable were typically measured by asking for the amount owed or due as of today. Finally the current value of fixed assets was measured by asking for the proprietor's estimate of the asset if it were to be sold today.

Proposed Proxies

Based on the review of empirical studies, four proxies were proposed for profits and four proxies for net worth. In the case of profits, the proxies range from a one-question proxy based on the proprietor's estimate of profits to a proxy that includes 41 questions covering sales, operating costs, labor costs, and depreciation of fixed assets. One of the simpler proxies uses only three questions based on how much the household consumes from the business, how much money it uses from the business, and how much is left over afterward.

The proxies for net worth range from a one-question proxy to a 17-question proxy that covers fixed assets, accounts receivable, inventory, debt, and cash of the business. The simpler proxies include fixed assets only and fixed assets plus debt, accounts receivable, and inventory.

Field Test and Analysis

The appendix to the paper describes a plan for a field test to measure the proxies alongside full measure of profits and net worth. Approximately 350 microenterprises will be interviewed in urban areas and small towns in Zimbabwe. Microenterprises will include all types of income-generating activities that employ up to three workers including the proprietor, unpaid family workers, paid workers, and apprentices. The sample will be based on a stratified, one-stage cluster sampling technique whereby all houses and places of business will be enumerated in the selected geographic areas. Based on the sample size and selection techniques, the profit calculations should fall within 20 percent of the mean level of profits with a 90 percent confidence level in urban areas and within 26 percent of the mean level of profits in smaller towns.

Conclusions

Following the field test of the proxies, the data will be analyzed and presented in a separate technical note. The proxies will be compared to the full measures of profits and net worth using the Pearson correlation coefficient, rank correlations, within-enterprise ranking, and a measure of the relative magnitude of the differences in the proxies. The time to administer each proxy will also be reported along with a discussion of the difficulties encountered for each proxy.

The goal of this project is to provide alternative methods to measure profits and net worth that are cost-effective, efficient, and reliable. Based on the results of the study, governments, donors, and practitioners should be able to use these proxies to measure the impact of microenterprise services with a greater degree of confidence.

I. INTRODUCTION

Many microenterprise support programs provide assistance to microenterprises under the assumption that it will lead to an increase in enterprise profits and improvements in household welfare. It is also assumed that, at least in some cases, the profits will be reinvested in the business, leading to growth of the enterprise and an increase in enterprise net worth. It is important, therefore, to be able to measure these two key variables--enterprise profits and enterprise net worth--in order to determine if microenterprise support programs lead to the anticipated impacts on enterprises.

In addition to measuring the impact of microenterprise services, information on profits and net worth is valuable for other reasons. For example, information on profits can help to measure the contribution of the microenterprise sector to the Gross Domestic Product (GDP), particularly since microenterprises are typically omitted from national statistics. In Kenya and Laos, for example, recent studies showed that the microenterprise sector contributes 12 to 14 percent of GDP (Daniels et al. 1995; Minot 1996). Information on profits or net worth can also help determine which types of microenterprises have the potential to grow and the types of assistance that are appropriate for different enterprises. This information can lead to improvements in the management of microenterprise support programs.

Despite the importance of enterprise profits, defined as enterprise revenues minus enterprise costs, and net worth, defined as enterprise assets minus enterprise liabilities, these two variables are often excluded from microenterprise studies due to measurement difficulties. Lack of written records, recall problems, time-consuming questionnaires, and sensitivity about income are just a few of the problems encountered when trying to measure profits or net worth. The purpose of this paper is to develop a plan to test alternative measures of profits and net worth in order to address the need for more reliable and cost-effective measures. In particular, there are three primary objectives of the paper:

- (1) to clarify the issues associated with the measurement of microenterprise profits and microenterprise net worth,
- (2) to provide detailed information on specific alternative measures, and
- (3) to provide a detailed plan for an empirical test of the alternative measures.

The first objective will be met by examining measurement issues in greater detail based on a review of empirical examples in the microenterprise literature and some conceptual papers on measuring profits and net worth. To meet the second objective, specific alternative measures will be proposed based on the findings in the literature. The steps involved in fully measuring profits and net worth will be described, as well as several proxies that are less complicated and expensive to implement. Finally, a complete plan for an empirical test of the alternative measures, including the sample design and questionnaire will be provided to meet the third objective. Following the field test in August 1999, the results will be analyzed and reported in a

second paper. This technical note will report the results of the statistical analyses to judge the performance of the proxies compared to the full measures of profits and net worth.¹

There are several limitations to this study that should be noted. First, most of the empirical examples included in this paper do not provide detailed information about problems encountered in measuring profits and net worth. For example, results from the studies typically do not indicate the number of cases when the proprietor could not provide enough information to estimate profits or the number of cases when profit estimates were negative. It is, therefore, difficult to measure the strength or weaknesses of each approach. Also, this study does not cover all examples of profit and net worth measurement. Although a thorough literature review was conducted, there probably are other published and unpublished reports. Third, due to budget limitations, the empirical test of alternative measures suggested in this paper is based on a single-visit survey. Ideally, profits should be measured through repeated visits or by direct observation whereby an enumerator records all transactions of a business over the course of several weeks. Because most organizations do not have the funds to do these types of surveys, however, the single-visit survey was considered appropriate. Finally, the field study will compare several proxies with full measures of profits and net worth, while assuming that the full measures are the most accurate. Without direct observation or repeat visits, there is no way to verify that the full measures are the most accurate measures of profits or net worth.

The paper is organized as follows. Section II begins with definitions of profits and net worth followed by a discussion of measurement problems. This section also lists the desired characteristics for proxy variables. Sections III and IV present detailed descriptions of empirical examples of profit and net worth measurement. Section V provides recommendations for proxies to measure profits and net worth as well as full measures for a single-visit survey. Finally, section VI offers brief conclusions. The appendices include the field plan for testing the proxies, a resource budget for the field test, the questionnaire, and the accompanying enumerator's manual.

II. MEASUREMENT OF PROFITS AND NET WORTH

A. Definition of Profits

Profits are typically defined as total revenues minus total costs where revenue is simply the price of the product multiplied by the number of units sold. Costs include all operating expenses plus the cost of depreciation on fixed assets such as buildings, tools, and machinery. In microeconomic theory, a distinction is made between accounting profits and economic profits. These are defined as follows:

¹ This project is being conducted as part of the Assessing the Impact of Microenterprise Services (AIMS) Project. The goals of the AIMS Project are to gain a better understanding of the processes by which microenterprise services strengthen businesses and improve the welfare of microentrepreneurs and their households and to improve the ability of USAID and its partners to assess the impacts of their microenterprise programs.

$$\begin{aligned}\text{Accounting Profits} &= \text{Total Revenue} - \text{Total Explicit Costs} \\ \text{Economic Profits} &= \text{Total Revenue} - \text{Total Explicit Costs} - \text{Total Implicit Costs}\end{aligned}$$

where

$$\begin{aligned}\text{Total Revenue} &= \text{price per unit multiplied by the number of units sold} \\ \text{Explicit Costs} &= \text{the monetary payments a firm must make to an outsider to} \\ &\quad \text{obtain a resource} \\ \text{Implicit Costs} &= \text{the monetary income a firm sacrifices when it uses a resource} \\ &\quad \text{it owns rather than supplying the resource in the market}\end{aligned}$$

Within the microenterprise sector, explicit costs typically include items such as raw materials, finished products, electricity, and wages paid to employees. Implicit costs include the wage that the proprietor or family members could earn in the next best alternative, or money that could be earned if the proprietor rented out the building, vehicle, or equipment used for the business.

A proprietor would like to maximize accounting profits in order to earn the highest possible return from his or her business. From a societal point of view, however, economic profits should be zero. When economic profits are greater than zero, excess profits are being earned. Consumers are paying a higher price than necessary and not enough resources are being allocated to the sector. When economic profits are zero, resources are being used efficiently. In this paper, the term profits will refer to accounting profits unless noted.

Within the microenterprise literature, profits and profitability have been defined through various measures. Inserra (1996), for example, defines “net income” as the sales receipts from goods or services minus variable and fixed costs. Little et al. (1987) define profitability as the gross value added (sales minus the cost of inputs) less the wage bill, divided by the value of capital. Yankson (1996) measures economic profitability using the Domestic Resource Cost, which essentially determines the domestic resource cost of foreign exchange earned or saved. Finally, Liedholm and Chuta (1976) estimate economic profits as value added minus capital services and all labor costs. These are just a few examples to illustrate the variety of ways that profits are estimated or defined. Additional examples are described in more detail in section III.

B. Definition of Net Worth

The net worth of an enterprise can be defined as enterprise assets minus enterprise liabilities. To break the definition down further, assets and liabilities must be identified. Barnes (1996) classifies assets into current, fixed, and human assets. Current assets include inventory of finished products, raw materials, cash, deposit/checking accounts, accounts receivable, and loans. Fixed assets include premises, buildings, utilities, machinery, equipment, tools, and any means of transportation. Human assets include management, technical knowledge, skills, and the time and capabilities of household members (Barnes 1996, p. 5). Little (1997) classifies assets as financial, material, human and/or social. The last category, human and/or social, refers to knowledge, education, and social networks that entrepreneurs rely on for support. Enterprise liabilities refer to outstanding loans or debt. This would include both debt to formal institutions as well as debt to informal lenders and credit received from suppliers.

Unlike profits, which can vary from week to week, net worth does not change dramatically in a short period of time. It is, therefore, a valuable measure since it can give some indication of the stability of an enterprise.

C. Problems with Measuring Profits and Net Worth

As mentioned in the introduction, profits and net worth are typically omitted from microenterprise studies due to measurement difficulties. In order to judge the proxies that are proposed in this paper, it is necessary to review possible problems that they may or may not address. This section provides an overview of the problems associated with measuring profits and net worth. It is not exhaustive since there are several other studies that cover these issues in greater detail.² It should also be kept in mind that the objectives for measuring profits may differ for different studies. Possible objectives might include estimating annual profits, comparing profits within a population or across populations, or assessing the rate of change in profits over time. Because of these different objectives, the problems listed below may not apply to all types of studies.

1. Lack of Written Records and Recall Difficulties

Most microenterprises do not keep written records. Liedholm (1991) for example, reports that only 17 percent, 9.8 percent, and 6 percent of microenterprises keep records in Sierra Leone, Jamaica, and Bangladesh, respectively. Due to the lack of written records, most information on profits and net worth must be derived from memory, which leads to inaccuracies in the data. Even with written records, Deaton (1997, p. 29) notes that "... the measurement of self-employed income is notoriously inaccurate; for example Coder (1991) shows that estimates of non-farm self-employment income from the March round of the Current Population Survey in the United States are 21 percent lower than independent estimates from fiscal sources, while the estimates for farm self-employment income are 66 percent lower." This statement shows that even if some businesses do keep written records, this is not a guarantee of reliable or accurate information on profits.

The accuracy of microenterprise data based on recall was tested in Jamaica and Honduras (Liedholm 1991). In these countries, microenterprises were visited twice a week for one year to collect data on profits. At the end of the survey, proprietors in Honduras were asked to provide their best estimate of sales, costs, and profits from the same one-year period. The sales estimates were 85 percent higher than the derived figures. Profits were overestimated by 47 percent and only 21 percent of respondents' estimates were within 25 percent of the derived profit figures. In Jamaica, 45 percent of the respondents could not recall any of the requested information while the others overestimated costs and underestimated sales.

² Inserra (1996) and Little (1997), for example, cover problems related to income measurement and offer suggestions for data collection. Inserra (1996) reviews measurement issues related to both microenterprise and household income with a much heavier emphasis on household income. Little (1997) examines household income and assets as impact indicators. His paper does not review the measurement of microenterprise income apart from household income.

2. Fungibility³

Many microenterprise activities are fully integrated into household activities. For example, in five countries where national studies were conducted, one-half to three-quarters of all microenterprises were located in the home.⁴ The integration of business and household activities raises many challenges for estimating business profits. In measuring revenue, for example, many households may have a single “purse” that does not separate household and business income. Because of this, proprietors find it hard to estimate how much money they made from their business. Similarly, expenses are difficult to estimate for businesses run from the home. If the business uses a separate room, it may be possible to assign a proportion of rent, water, and electricity bills to the business. If, however, the business is run in from one of the living areas, it may be difficult to assign a portion of expenses to the business. These issues become even more complicated if there are two or more businesses operated from the home, particularly if they share the same resources such as vehicles or work areas. Finally, households may consume or give away a large portion of their enterprise products or services. When proprietors estimate their revenues or expenses, they may not consider what they consume themselves.

Fungibility also leads to similar problems when trying to estimate net worth. For example, assets include the cash and savings *of the business*. Again, since many households combine various sources of income, it is difficult for a proprietor to determine how much of their savings or cash on hand is associated with a particular business versus other household activities. Assets also include fixed assets such as the value of the premises or building. If the building is used as a dwelling in addition to one or more businesses, it is difficult to assign an appropriate value to the fixed assets of the business. Finally, although a business may have expensive assets, the source of funding for the assets may have come from other sources of income in the household rather than the business. In these cases, net worth is not a good indicator of the viability of the business.

3. Seasonality

Some microenterprises may be seasonal or function only part of the year. For example, 12 percent and 7 percent of microenterprises operate less than 12 months a year in Zimbabwe and Kenya, respectively (McPherson 1998; Daniels et al. 1995). This leads to both measurement and survey implementation problems. Regarding measurement, many surveys rely on the previous week or month to collect data on profits. While this method may reduce recall errors, it assumes that profits are stable throughout the year when extrapolating the results. Liedholm (1991) shows that this may not be the case. In Sierra Leone, he reports that profits were four times greater in the peak-activity month compared to the lowest-activity month in rural areas. If profits for last week or month are used without extrapolating, then the survey should ask whether the past week or month was an average, high, or low month for each of the main sectors covered by the study.

Regarding survey implementation problems, the timing of the survey may be an issue depending on the sectors being studied. Little (1997) points out, for example, that peak periods of business

³ For an excellent review of fungibility issues in the household-model literature see Chen and Dunn (1996).

⁴ The countries included Zambia (Parker 1996), Zimbabwe (McPherson 1991), Botswana (Daniels and Fisseha 1991), Malawi (Daniels and Ngwira 1993), and Kenya (Daniels et al. 1995).

activity will vary based on the type of activity. If annual survey visits are planned, they should be done at the same time each year to minimize the changes in sales patterns.

4. Fluctuation in Income

In addition to seasonality, microenterprise income may fluctuate for other reasons. Inserra (1996) notes that other factors such as drought, family problems, and macroeconomic factors may lead to changes in income. Based on these types of fluctuations, a multiple-visit survey is more appropriate than a single-visit survey. This problem may be addressed in a single-visit survey, however, if a sub-sample of microenterprises are asked to keep records of these types of changes in order to incorporate them into the final analysis.

5. Sensitivity

One of the most difficult problems in collecting accurate information on profits and net worth is the sensitivity of the information. Proprietors who want to avoid taxation may under report their earnings or they may refuse to cooperate if they think the enumerators are associated with the government. Similarly, some activities may be illegal, such as beer brewing or vending in certain areas, so proprietors may be hesitant to cooperate with a survey. Finally, if an enumerator is interviewing a proprietor with her relatives, neighbors, or other entrepreneurs nearby, she may not want to reveal how much she actually makes. In addition to the sensitivity of questions related to income, questions about debt and personal savings may also be sensitive topics. Attempts to collect information on all of these topics may lead to inaccurate data or a lack of cooperation.

6. Analysis and Valuation Problems

There are many analytical and valuation problems that arise when estimating profits and net worth of microenterprises. One of the key analytical problems is determining the appropriate rate of depreciation for fixed assets. This involves some judgement about the quality of the assets and their expected useful life. Many studies use a standard straight-line depreciation method of 10 to 20 percent annual depreciation for all assets. As Liedholm and Chuta (1976) note, however, the life expectancy of assets may range from two years to 35 years. A single depreciation rate for all assets can, therefore, lead to over or underestimation of profits. In Jamaica, the AIMS project avoided this problem by developing a “book of values” which lists all types of assets and the appropriate depreciation rate based on the age and expected life of each type of asset (Blank 1998).

In addition to the analytical problems related to fixed assets, valuation problems are also common. For example, the respondent may be asked for the original purchase price of a fixed asset, which can lead to recall difficulties. Alternatively, if the proprietor is asked for the current value of the asset, he or she may not be able to respond if there is no market readily available for used fixed assets. In addition to the depreciation rate already mentioned above, the book of values used in Jamaica also lists the average new price for each type of asset (Blank 1998).

Self-supplied inputs also lead to valuation problems when measuring microenterprise profits. For example, family labor used in the business should be assigned a value in order to calculate

economic profits. Typically this would be the wage in the next best alternative; however, there may not be any alternatives. Instead, the microenterprise may be absorbing the surplus family labor until family members can find jobs elsewhere. This makes it very difficult to assign a value to self-supplied inputs.

7. Questionnaire Design

Time-consuming questionnaires often discourage practitioners from including profits and net worth in a survey. Although it is possible to ask about profits or net worth with only a few questions, this method may be very inaccurate. For example, sales may fluctuate throughout the year and therefore the questions should address seasonality. Similarly, costs may accrue over different time periods such as daily costs for some items and monthly costs for others. To assess these costs with some degree of accuracy, the questionnaire should be flexible to allow answers based on the different time periods. Finally, some questionnaires include different sections for traders and manufacturers since the cost structures differ for these types of enterprises. To address all of these issues, a longer questionnaire may be required and thus a longer interview. As the length of the interview increases, the sample size must be reduced or the budget for the study must be increased.

D. Desired Characteristics for Proxy Variables

Due to all of the problems identified above, it is clear that profits and net worth are difficult and time-consuming to measure. Proxy variables that rely on fewer questions may be one solution to measuring profits and net worth. This section describes the desired characteristics of proxies based on work done by Godsey (1996), who did an extensive literature review on indicators for sustainable farming systems. Godsey classified four desired characteristics of indicators: simplicity, availability, reliability, and validity. Each of these is described below.

Simplicity means that an indicator or proxy should be easy to use, simple to understand, and simple to quantify. In this case, microenterprise profits and net worth are easy to understand, but typically difficult to quantify as described above. The proxies will, therefore, try to simplify the measurement of these variables by reducing the number of questions and testing the proxies against the full measures of profits and net worth. While these measures may not be as accurate, Vijverberg and Mead (forthcoming, p. 21) conclude that “rather than investing considerable time and energy in trying to collect and analyze detailed information on income, it is better to concentrate on simpler measures, even while recognizing them to be incomplete and imprecise.”

Availability refers to a proxy that is inexpensive, cost-effective, and efficient. As indicated in the previous section, full measures of profits and net worth do not meet these criteria. They are typically time consuming, expensive, and often produce poor results in terms of accuracy. This study will try to address these issues by comparing several proxies with a full measure to see which proxies are the most cost-effective and efficient.

Reliability refers to the robustness and replicability of a proxy. In other words, how accurate are the proxies and can the results be reproduced? As pointed out by Godsey, accuracy depends on the input data. Again, this will be tested in this study by using several different sets of questions

to see which types of input data produce the results that are most similar to a more complete measure of profits or net worth.

Finally, *validity* refers to proxies that are significant, valid, relevant, and objective. In particular, Godsey says that validity refers to the “ability of the indicator to measure the concept for which it was intended to measure” (Godsey 1996, p. 31). For example, proxies that use different questions to estimate revenues minus expenditures would be considered valid proxies of profits. Revenues alone, however, may not be considered valid. Similarly, wages paid to employees may not be considered a valid proxy for profits since the sum of wages is an input cost and it does not include returns to unpaid family labor, management, and self-supplied inputs.

Overall, Godsey acknowledges that the judgements regarding the four evaluation criteria listed above are subjective and based on the perspective of the researcher. Nonetheless, they should be used as guidelines when developing proxies or indicators.

III. MEASURING PROFITS: EMPIRICAL EXAMPLES

Profits are typically measured through four key components: sales, labor costs, other operating costs, and fixed assets. This section describes the methods used to measure these components in 11 empirical studies. Following the description of each study is a summary of its strengths and weaknesses. Finally, summary tables are provided at the end of the section to show how each component of profit was measured and the definition of profit used in each study.

A. Sierra Leone (Liedholm and Chuta 1976)

Background. In 1974, Michigan State University and Njala University College carried out an intensive one-year study of micro and small enterprises in Sierra Leone. One of the primary objectives of the study was to provide a descriptive profile of small-scale industries. The data were collected in two phases. The first phase was a census of all enterprises in order to establish a sampling frame. In the second phase, 270 enterprises were selected in localities with 2,000 or more inhabitants. Of these, two-thirds were selected randomly while one-third were selected purposively in order to guarantee a variety of production techniques. Three types of data were collected in the second phase, which consisted of multiple interviews: (1) stock data were collected at the beginning and end of the survey; (2) data on sales, output, labor, and inputs were collected twice a week for one year; and (3) information on entrepreneurship was collected in a single interview.

Definition of Profits. The Sierra Leone study examined both value added and economic profits. Value added was calculated as the gross output value minus the material and services input value. The gross output value was measured as the sales price of all output, including output produced for inventory, barter, or gifts. The material and services input value was measured as “the purchased value of all raw materials, lubricants, fuels (including electricity), water, indirect taxes and telephone services consumed by the sampled firm during the year” (Liedholm and Chuta 1976, p. 19).

Economic profits were measured by starting with the value added measurement described above, and subtracting the opportunity cost of the firm's annual capital services, the annual non-family labor services, and the opportunity cost of the proprietor's and family's time. The calculation of the opportunity cost of the firm's capital services is described below under fixed assets. The opportunity cost of hired labor was estimated as the actual wage rate paid. Apprentices, however, were valued at a higher rate than their wages. This was done because apprentices were paid less than the value of their contribution according to a production function analysis conducted by the authors. Finally, the opportunity cost of the proprietor was estimated as the value of the proprietor's marginal product in each industry, again using a production function analysis, while the family labor cost was a combination of the assumed opportunity cost of hired and apprentice labor.

Sales. As illustrated in figure 1, sales data were collected by listing every item sold by the business along with the quantity sold and the value in cash and in credit. The monetary values of the items consumed by the proprietor, given away as gifts, and stored were also included.

Labor Costs. Data on labor costs were very detailed. As illustrated in figure 2, the name of each worker was listed along with the hours worked on each item or activity. This was done to avoid including hours on the job when the worker had nothing to do. The data on wages were then collected for cash and in-kind payments in a separate column.

Figure 1: Sales Questions from the Sierra Leone Questionnaire (Liedholm and Chuta 1976)

Total Sales Credit							Consumed within establishment		Gifts		Amount Stored	
Item	Qty		Cash		Credit							
	Unit	No.	Qty.	Val.	Qty.	Val.	Qty.	Val.	Qty.	Val.	Qty.	Val.

Figure 2: Labor Cost Questions from Sierra Leone Study (Liedholm and Chuta 1976)

Date	Time Opened	Time Closed	Name	Item or Activity					Wages			
				List*	Qty	Date Begin	Date End	Hrs	Cash	In-Kind		
										Item	Qty	Value

* Enumerators were asked to write out the name of the activity or item in this column.

Other Operating Costs. Inputs purchased with cash and credit were listed individually on the questionnaire. Again, the information was very detailed, including the origin or brand name of each input, the unit of measurement, the number of units purchased, and the value of units. This is illustrated in figure 3.

Figure 3: Operating Cost Questions from the Sierra Leone Study (Liedholm and Chuta 1976)

Item	Origin or Brand name	Cash			Credit		
		Quantity		Value	Quantity		Value
		Unit	No		Unit	No	
Raw Materials							
Lubricants							
Fuel							
Transport							
Office supplies							
Repairs							
Spare parts							
Commissions							
Other							
Electricity							
Rent on equipment							
Rent on building							
Telephone bill							
Water rate							
Wages (monthly)							

Fixed Assets. The authors categorized fixed assets as equipment and buildings. Equipment, which included tools, machines, and furniture, was valued at its original purchase price based on information provided by the proprietor. Buildings included the value of the building and the land used by the business. In order to convert the capital stock figures into service flow data, all building and equipment values were “converted into capital services flows using the capital recovery formula:

$$R = \frac{rV}{1 - (1 + r)^{-n}}$$

where R is the constant annual capital service flow, V is the original (undepreciated) market value of the assets, r is the discount rate and n is the life expectancy of the capital” (Liedholm and Chuta 1976, p. 27). Essentially, this generates a rental charge of capital which accounts for depreciation and the opportunity cost of the capital.

Using the capital recovery formula requires information on the life expectancy of capital. This information was collected from each respondent. Because estimates for each type of equipment varied widely (from two to 35 years), however, the average life expectancy for each piece of capital was used.

In addition to the life expectancy estimates, the capital recovery formula requires some estimate of the discount rate. This rate should reflect the opportunity cost of capital in Sierra Leone. Often the bank interest rate is used since a proprietor could have earned that interest rate if they put their money in a bank. As Liedholm and Chuta point out, however, the bank interest rate was 12 percent, but the informal rural credit market had an interest rate of 40 percent. They, therefore, decided on a discount rate of 20 percent.

Strengths and Weaknesses. Using the multiple-visit survey approach in Sierra Leone has numerous advantages. First, this method helps to address the recall problems associated with a single-visit survey. Second, the issue of seasonality is addressed easily since enumerators record revenues twice a week throughout the entire year. This method also addresses the problem associated with costs that accrue over different time periods. Finally, multiple visits over a long period may help to build trust between the enumerator and respondent, thus reducing the sensitivity issues related to income.

In addition to the advantages of the multiple-visit approach, the Sierra Leone study had several other strengths. As described in section II above, assigning values to family labor is a difficult task. Liedholm and Chuta handled this by estimating a production function and assigning values based on marginal productivity, which is much more sophisticated than making a rough estimation. Similarly, rather than assuming one rate of depreciation for all capital items, the study used different life expectancy rates. Liedholm and Chuta also used the capital recovery formula to estimate capital service flows in order to represent the true opportunity cost of capital.

Although the strengths of this study are numerous, the method is complex, time consuming, and expensive. Most government and development agencies would not be willing to invest the time and resources that are required to conduct a multiple-visit survey over the course of one full year.

B. Kenya (Daniels et al. 1995)

Background. In 1995, the GEMINI project carried out a national survey of microenterprises in Kenya. The primary goal of the survey was to measure income generated by microenterprises. The survey also was designed to examine changes in the microenterprise sector following an earlier survey in 1993 (Parker with Torres 1994). The nationally representative sample covered 2,259 existing enterprises.

Definition of Profits. Profits were calculated as sales minus operating costs and depreciation.

Sales. As illustrated in figure 4, the respondents were asked which months of the year were considered high, low, and average months as well as the average sales in each type of month.

Figure 4: Sales Questions from the Kenya Questionnaire (Daniels et al. 1995)

21. Which months during the year do you have high, low, and average sales?													
Sales	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
High													
Low													
Avg													
24. Please tell us the average sales per month for all 3 types of months. a. High sales months? b. Low sales months? c. Average sales month?													

Labor Costs. Proprietors were asked how much they paid in salaries, piece work, and other types of paid labor. They could select their own time reference period for reporting the payment data (i.e., per day, week, month, year).

Figure 5: Trader Questions from Kenya Questionnaire (Daniels et al. 1995)

Product	Most frequent selling price per piece in past week		Cost of purchase of the product		How many did you sell last month?		Units of sales per unit of purchases
	price	unit	price	unit	No. of units	time period 1) day 2) week 3) month	How many units of A are in one unit of B?

Other Operating Costs. The questionnaire was divided into two sections for costs. One section covered traders and the other section covered manufacturing and service microenterprises. For the traders, respondents were asked to list their top five products in terms of sales, as illustrated in figure 5. The purchase price, selling price, and the number of units sold during the last month were then recorded. From this information, a weighted average of the five products based on sales values was estimated and an overall margin was obtained. From this margin, other costs were deducted. The other costs were based on information from a list of items including utilities, transport, rent, credit, and repairs.

For manufacturing and service microenterprises, proprietors were asked for the cost of the same list of expenses as in the trader section. In addition, however, they were asked about costs of inputs or supplies.

Fixed Assets. Respondents were asked to identify all machinery, equipment, hand tools, and buildings used in the enterprise. They were then asked how many years they owned it and the original purchase price. To estimate depreciation costs, the original values were inflated to current prices and then depreciated over 20 years for buildings and five years for all other equipment.

Strengths and Weaknesses. The Kenya study addressed several difficulties with measuring profits. First, seasonality was addressed by asking about the level of sales for all months. Second, proprietors were able to express costs based on their own reference period. Third, the survey used inflated values of fixed assets rather than relying on proprietor's judgement for the current value.

Although this study had greater detail in terms of seasonality, costs, and assets, proprietors could not always answer all questions. When this happened, a final figure for profits could not be calculated. There were also numerous cases where the proprietor was not available to answer and the employee could not answer the questions. Overall, of the 2,259 microenterprises interviewed, there were profit estimates for only 1,615 cases. Of these, 35 percent reported negative profits. Although economic theory assumes that firms may operate with negative profits in the short run, this rate was unacceptably high. Two rules were, therefore, made to remove some of the outliers. First, the ratio of sales to purchase price had to be greater than one for traders. For non-traders, total costs in the reference month could not exceed the total sales for that month by more than 20 percent. After these rules were applied, only 1,186 microenterprises were left and four percent had negative profits.

Overall, this was a moderately complex method of collecting data involving roughly 30 questions related to profits. Although the study addressed some of the difficult issues associated with profits, the large number of observations with negative profits indicates that more complex methods to measure profits are not necessarily better or more accurate.

C. India (Little et al. 1987)

Background. Between 1978 and 1980, sample surveys of five Indian industries were conducted. The main purpose of the surveys was to gather information on unregistered firms with up to ten workers and explore issues related to productivity. A total of 274 enterprises were interviewed in the shoe, printing, soap, machine tools, and metal casting industries.

Definition of Profits. Profitability was defined as the gross value added minus the wage bill, divided by the value of capital. Capital was defined as the undepreciated book value of assets in 1980 dollars plus working capital.

Sales. Because gross value added was used, data on sales and the cost of inputs had to be collected. Information on how this was done was not provided.

Labor Costs. Labor estimates for this survey were complicated. The researchers began by separating skilled and unskilled labor based on the types of tasks performed. In addition, the estimates of labor costs took into account seasonal labor and piece-rate labor. Proprietors were asked for the minimum and maximum earnings by job classification. The midpoint of this range was then multiplied by the number of workers in each occupational grouping. The sum of skilled and unskilled wage payments was then estimated for each firm. Overall, the estimated labor costs were greater than actual costs due to the averaging and the inclusion of unpaid family workers. The following steps were, therefore, taken: (1) labor costs were adjusted upward for unpaid workers and proprietors by adding in an imputed value of earnings for these groups of

workers; and (2) the adjusted costs were divided between skilled and unskilled labor in proportion to the share of the two skill categories.

Other Operating Costs. Data on raw materials were gathered; however, no specific information on this was provided.

Fixed Assets. The study gathered historic cost values of capital inputs and then converted them to 1980 prices. The capital stock measure was converted to represent a flow overtime by using annuity factors based on an assumed rate of return of ten percent and the average expected lifetime of each asset within an industry.

Strengths and Weaknesses. The authors reported great difficulties in measuring capital, particularly for those firms with a few hand tools. They also acknowledged that rent for premises was not included in their calculations and thus could lead to overestimation of profitability.

Because the questionnaires were not available and there was very little information about how the data were collected, it is difficult to judge the strengths and weaknesses of this approach. It appears to be a relatively complicated process based on the calculation of labor costs and the level of detail needed to separate jobs by skill types. Also, this level of detail may only be appropriate, as in this case, when studying a limited number of industries.

D. Bangladesh (Haggblade 1992)

Background. Haggblade (1992) proposed a method to estimate profits using wage earnings to estimate microenterprise income. He used an entrepreneur in Bangladesh as an example; however, it is not clear from the article if this method was tested. The method proposes a simple form (see figure 6) with two columns. The left-hand column would be filled out at the start of the project and the right-hand column would be filled out after the project.

Definition of Profits. Profits were estimated using a proxy consisting of the sum of earnings of employees and the earnings of the proprietor. Specifically, the proxy was calculated as the number of person-days per year of labor used in the enterprise multiplied by the average daily wage rate per worker as estimated by the proprietor. The person-days worked by the proprietor were estimated as two times the average daily wage rate per worker. To measure changes in profits, Haggblade suggests that displaced earnings that were foregone due to increases in business activities (see question four on the form) must be subtracted, as well as any increases in the business profits that would have occurred due to natural growth in the economy. This can be measured by “project area general economic indicators, e.g., general store turnover; bank deposits; agricultural output, no. of arriving taxi passengers per month” (Haggblade 1991, p. 17).

Sales. Because profits are based on earnings, it is not necessary to collect information on sales.

Figure 6: Form from Bangladesh Example (Haggblade 1992)

Name			Date		Date				
Registration (before project)					Monitoring (after project)				
1. Which people work with you in this activity?					1. In the past __ years, how has your business volume changed?				
Job	Name	Status			a. Increased b. No change c. Decreased	< 50%	>50%		
2. Do you work at this activity all year long?					2. In the past year, how much did you work at this activity?				
	Which months	# of people working	Days/ mo	Hrs / day		Which months	# of people working	Days/ mo	Hrs / day
Zero activity					Zero activity				
High season					High season				
Low season					Low season				
3. Wage rates a. What wage rate would you pay to an average worker in your business? _____ b. What do farm laborers earn during your high season? _____ (I) male _____ (ii) female _____					3. Wage rates a. What wage rate would you pay to an average worker in your business? _____ b. What do farm laborers earn during your high season? _____ (I) male _____ (ii) female _____				
4. What activities earn you the most money? Rank the top 3 and list the months in operation. 1. 2. 3.					4. As a result of the increase (decrease) in your business, did you decrease (increase) other activities? If so Which activity Change from Change to				
5. What assets do you own in this business? A. Land b. Building c. Equipment					5. Have you purchased any business assets in the past __ years? A. Land B. Building C. Equipment				

Labor Costs. As illustrated in figure 6, the proprietor is asked for the wage rate paid to an average worker as well as the number of days per month and hours per day that workers are employed in the high and low seasons. Information on unpaid labor is not collected.

Other Operating Costs. Other operating costs are not necessary since profits are based on earnings.

Fixed Assets. Proprietors are asked about land, buildings, and equipment, but they are not asked for the value of these items.

Strengths and Weaknesses. According to Haggblade, this method eliminates the need for a control group since general changes in the economy are taken into consideration. It also reduces what Haggblade refers to as the displacement problem whereby “firms compete for a stagnant volume of final demand” (Haggblade 1991, p. 18). For example, some studies that use a control group show that assisted firms perform much better than non-assisted firms. This may be partly due to the fact that there is a finite level of demand for products produced by microenterprises.

When certain firms are given an advantage through a loan or some other form of assistance, their sales increase. Non-assisted firms, on the other hand, automatically contract or go out of business since there is not enough demand for the products of both the assisted and non-assisted firms. Again, because a control group is not used, this is no longer a problem.

This seems like a very innovative approach that is simple to implement. The estimate of profits (or earnings in this case) is based on about six questions. It avoids all of the problems associated with negative profits, depreciation, costs that accrue over different time periods, and seasonality. At the same time, however, the accuracy of the method has not been tested against more conventional methods.

E. Living Standards Measurement Studies (LSMS) (World Bank)

Background. The LSMS studies were started in 1979 to “develop the World Bank’s ability to monitor levels of living, poverty, and inequality in developing countries, to allow more accurate statements about the number of people in poverty around the world, and to permit more useful comparisons between countries” (Deaton 1997, p. 32). The first studies were conducted in Peru and Côte d’Ivoire in 1985/86. Since that time, there have been several dozen LSMS surveys.

The household questionnaire for the LSMS survey is long (about 110 pages) and includes 17 modules including one on non-farm self employment and another on economic activities, which includes work in family enterprises. The sample size varies from country to country.

Figure 7: Enterprise Module, Part B, LSMS Questionnaires

During the past 12 months, did your business make any expenditures for the following?	How much do you usually pay for for this business? (including the value of payments in kind)	How often do you pay for ...?	Do your household or other businesses belonging to the household use this...?
yes/no for each item	amount	Times/time unit number of times per day/week/month/quarter/half year/year	yes/no
Wages or other remuneration Raw materials Articles for resale Rental of equipment, land, buildings, Vehicles or machinery Maintenance and repairs Transport Fuel and oil Electricity Water Daily taxes Annual taxes or licenses Other expense			

Definition of Profits. Vijverberg (1991) examines income from family enterprises using the Côte ’Ivoire and Ghana studies. He identifies three variations of income that can be measured: profits, net revenue, and earnings. Profits are defined as total revenue minus total expenditures.

Net revenue is defined as the sum of the value of products consumed by the household, the money generated by the business and used by the household, and any money left over after consumption and using money for the household. Earnings is defined as income earned by all family members that work in the business. All of the survey questions related to these definitions are illustrated in figures 7, 8, and 9.

Sales. As illustrated in figure 8, the value of sales is determined by question C1, allowing the proprietor to make an estimate of sales since the last visit. This is only used in the profits calculation. The amount of payments received in the form of goods or services and the amount consumed by the household are also calculated in total revenues.

Figure 8: Enterprise Module, Part C, LSMS Questionnaires

C1.	Since my last visit, how much money has the business received from the sale of its products, goods or services?amount
C2.	Since my last visit, has this business also received payments in the form of goods or services? If yes: what was the value of these payments since my last visitamount
C3.	Since my last visit, has any of this business' products or services been consumed or used by your household instead of being sold? If yes: what was the value of the products consumed or used by your household since my last visit.....amount
C5.	Do you use part of the money you get from this business for yourself or for your household? If yes, how much money do you normally use for yourself or your household? amount....per day/week/month/quarter/half year/year
C6.	After making purchases for the business and after using some money for yourself or your household, is there usually any money left? If yes, how much money do you usually have left after purchases for the business and after using some of the money for yourself or your household?amount....per day/week/month/quarter/half year/year

Labor Costs. Labor costs are covered by Part B of the enterprise module. As illustrated in figure , the proprietor estimates the total value paid to all workers and specifies the appropriate time unit. The value of unpaid family labor is not recorded.

Figure 9: Economic Activities Module, LSMS Questionnaires

1.	For how many days during the past 7 days did you do this work?
2.	During these days, how many hours per day did you do this work?
3.	Have you received or will you receive money for this work. If yes, how much money amount...per hour/day/week/month/quarter/half year/year

Other Operating Costs. Other operating costs are also calculated using Part B of the enterprise module. Again, a single value is estimated for each expense.

Fixed Assets. The three measures of income described by Vijverberg (1991) do not include the costs of fixed asset depreciation. The LSMS surveys do, however, have a component that covers business assets. In particular, respondents are asked if any of their three most important businesses own a workshop, vehicle (including autos, trucks, and bicycles), tools, equipment and

machinery, boats, or other durable assets. If so, respondents are asked how much they could obtain if they sold them today.

Strengths and Weaknesses. Although the LSMS surveys themselves are very complex, the modules that relate to microenterprises are very short. The calculation of profits and net revenues described above involve only three questions each. Earnings are also calculated using three questions and then summed over all household members that work in the business.

Although this appears to be a simple method, there are some weaknesses. First, the phrase “since my last visit” was used to give the respondent a concrete time frame to estimate sales and household consumption. In most cases, the enumerators would fill out part of the questionnaire on one day and return within two to three weeks to fill out the remaining portion of the questionnaire. As pointed out by Vijverberg and Mead (forthcoming, p. 17), however, the time between the two visits varied between households due to “holidays, weather, interviewers’ travel schedules, and the availability of household members.” In some cases, all modules were completed in one day so that the question did not make sense.

Second, using the Côte d’Ivoire study, Vijverberg (1991) showed that the profits calculation can lead to many negative estimates. In 1985, when respondents were asked about revenues first, followed by expenditures, 51 percent of the cases had negative profits. The researchers therefore changed the order of the survey to ask about expenditures first, followed by revenues. After this change, 37 percent of the cases had negative profits. This is still a large number of negative cases. Vijverberg and Mead (forthcoming) also examined six LSMS data sets and showed that the number of cases with negative profits ranged from 14 percent in Vietnam to 64 percent in Ghana.

F. Mali (MkNelly and Lippold 1998)

Background. In 1998, the Assessing the Impact of Microenterprise Services (AIMS) project carried out an impact assessment of the *Credit with Education* program of Kafo Jiginew, a Malian credit union. The purpose of the study was to “develop a set of tools which could be used by practitioners to generate useful and credible assessments which capture the range of social and economic impact of their microenterprise programs on clients, their businesses, households, and communities” (MkNelly and Lippold 1998, p. 1). The sample was broken down into three groups including one-year clients, two-year clients, and incoming clients. A total of 94 clients were interviewed. The questions related to sales, profits, and labor costs are illustrated in figure 10.

Definition of Profits. Information was collected on revenues and explicit costs in order to calculate profits. Proprietors were also asked for an estimate of their profits as illustrated in question 16f in figure 10. The proprietor’s own estimates were approximately 14 percent higher than the derived profit figures.

Sales. Respondents were first asked about their “product cycle” as illustrated by question 16c in figure 10. After determining how often the business incurred costs and made a profit, the respondents were asked about the total sales in cash and credit.

Labor Costs. All operating costs, including labor, inputs, transportation, taxes, rent, water, and electricity were collected based on the product cycle as described above. This is illustrated by question 16d in figure 10.

Other Operating Costs. (see labor costs above).

Figure 10: Questions from the Mali Questionnaire (MkNelly and Lippold 1998)

16c. What is your product cycle for this business — how long does it take from the time you purchased inputs to the time you sold most of the product? For example, if you sell cooked food in the market once a week and buy your ingredients on a weekly basis, you earn a weekly profit. If you fatten animals for sale you may only earn a profit every 6 months. (*Read the possible responses.*)

☐ 1. daily ☐ 3. every two weeks ☐ 5. other (specify) _____
☐ 2. weekly ☐ 4. monthly

16d. What and how much were your costs for your last product cycle? (<i>Probe for all business expenses including inputs, transportation, hired labor, taxes, rent, water, light, etc. List expenses and enter their cost in appropriate time period box.</i>)					
Expense	Cost per day	Cost per Week	Cost Per 2 Weeks	Cost per Month	Expense for other time period, specify _____

16e. Sales: For the same product cycle, what were your total sales [cash and credit]? (<i>Enter amount in appropriate time period box.</i>)				
Daily Sales	Weekly Sales	Sales per 2 Weeks	Monthly Sales	Sales for other time period, specify _____

16f. Profit: For the same product cycle, after covering your business costs - but before you spent your earnings on your family - what was your profit?					
(<i>Enter in appropriate time period</i>)	Daily Profit	Weekly Profit	Profit per 2 Weeks	Monthly Profit	Profit for other time period, specify _____

Fixed Assets. Information on the value of fixed assets was not collected.

Strengths and Weaknesses. This study had some innovative techniques, particularly related to the product cycle. By allowing the respondent to state the product cycle first and then asking questions about sales and costs, the survey addressed the issues of costs and sales that accrue over different time periods. Another innovative technique was to ask the enumerator to assess the ability of the respondent to estimate sales, costs, and profits according to the following categories: great difficulty, some difficulty, no difficulty. This information was used to get a rough idea of the accuracy of the data. The report indicated that close to 50 percent of respondents had much difficulty.

Overall, this was a relatively simple method to collect information on sales and costs involving seven questions (assuming five lines of expense categories). The method does not, however, address seasonality or depreciation of fixed assets.

G. Zimbabwe (McPherson 1998; Daniels 1994)

Background. In 1991, 1993, and 1998, three national surveys of micro and small enterprises were conducted in Zimbabwe by the GEMINI project. The two later surveys both measured profits. The purpose of the surveys was to assess the impact of structural adjustment on the microenterprise sector and to look at changes in the sector in general. In the 1993 survey, 5,356 microenterprises were interviewed and in 1998, 6,620 microenterprises were interviewed.

Definition of Profits. Annual profits were calculated as annual sales minus expenses. An expense ratio was estimated using the ratio of costs last week divided by the sales last week. This was then multiplied by annual sales to get an estimate of annual expenses. Proprietors were also asked to estimate profits last week. If this estimate was not accurate when compared to sales minus expenses last week, it was assumed that the proprietor did not understand the concept of profits. In these cases, the average ratio of expenses to sales last week for all other firms of the same type that *did* estimate profits correctly was used. Thirty-two percent of all respondents answered the questions on sales, expenses and profits during the previous week. Eighty-eight percent of those that answered calculated profits correctly.

Sales. Like the Kenya study, proprietors were asked to state if sales were high, average, or low for each month of the year followed by the average sales for each type of month. Annual sales were then calculated by multiplying the average sales in each type of month by the number of months of that type and adding them together.

Labor Costs. The questionnaire included a section on workers that asked for the number of working owners, paid workers, unpaid workers, and apprentices. The number of part-time employees in each of these categories was also listed, but the exact number of hours was not recorded. Although this information was collected, it was not used in the profit calculation. Instead, there was one question that asked for the amount spent on several categories over the past week. One of these categories was hired labor.

Other Operating Costs. As mentioned above, one question asked about the amount spent over the past week on several categories of expenses, including stationery, fuel, inventory, purchased inputs, hired labor, transport, rental, maintenance/repairs, and other. These costs were then divided by sales last week to get a ratio of expenses to sales.

Fixed Assets. Respondents were asked how much money they spent on equipment and/or buildings to start the business and how much they spent after their initial purchases in two questions on the questionnaire. The results in the report showed the average profits per sector. This was calculated using a straight-line depreciation method over a five-year period as follows:

$$\text{Profits}_i = \text{Average profits before depreciation}_i - \left(\frac{\text{average capital costs}_i}{5} \right)$$

where i = sector ($i = 1, \dots, n$)

Strengths and Weaknesses. Using the costs-to-sales ratio for the last week reduces recall problems. It could, however, lead to significant under or overestimation of profits since the last week may not be typical of sales or expenses. On the other hand, using the average ratio of expenses to sales for a given type of microenterprise when the proprietor could not estimate profits correctly is an innovative approach to help reduce the number of cases with negative profits.

The five-year, straight-line depreciation method used in this study is simple. It may, however, lead to inaccuracies. As Liedholm and Chuta (1976) point out, the lifetime expectancy of capital can range from two to 35 years for various pieces of equipment.

Overall, this was a moderately simple method to estimate profits involving 17 questions. Seasonality is addressed; however, recall problems are still a problem when estimating monthly sales for an entire year.

H. Laos (Minot 1996)

Background. In 1995, the Lao-German Small Enterprise Development Project and the Ministry of Industry and Handicraft of the Lao People's Democratic Republic carried out a national survey of small and medium enterprises. The main objective of the survey was to provide more information on the small enterprise sector. A brief questionnaire, which covered general characteristics of the enterprise, was administered to 2,799 enterprises. A longer supplementary questionnaire, which included information on profits, was administered to 778 entrepreneurs.

Definition of Profits. Two measures were used to estimate profits. First, the net income per worker was defined as sales revenue minus input costs, electrical costs, and depreciation charges all divided by the number of workers. The second measure was "wage payments (including the owner "salary") divided by the number of workers (including the owner)" (Minot 1996, p. 44).

Sales. As illustrated in figure 11, proprietors were asked about the value of sales during the month. They were given the option of specifying sales on a daily, weekly, monthly, or some other basis. Proprietors were then asked how the month compared to other months and how much they typically make in sales during months that have higher or lower sales. Finally, the number of months each year that are high, average, and low were recorded.

Figure 11: Sales Questions from the Laos Questionnaire (Minot 1996)

4.	What is the value of your sales this month? per: 1) day 2) week 3) month 4) other_____	_____
	[If sale per day or sale per week given, ask confirmation question: “So that would mean that sales of about XXXX kip per month. Does that seem right?” If yes, continue. If no, revise answer to Q19]	_____
5.	How are sales this month compared to the average over the year? _____	_____
	Codes: 1) Higher than average 2) About average 3) Lower than average [Put monthly figure from Q19 in appropriate box in Q21 and ask about other two categories]	_____
6.	What is the value of your sales during... a high month an average month a low month	_____ _____ _____
7.	How many months out of the year are sales.... higher than average? average? lower than average	_____ _____ _____

Labor Costs. Labor costs were determined by asking one question that is illustrated in figure 12. Although only one number is recorded, enumerators were asked to calculate this number by asking about the average amount paid per day to employees, how many days employees work, and how many paid employees there are. The survey also asked how much proprietors paid themselves in the form of money taken out of the business for household use.

Figure 12: Labor Cost Question from Laos Questionnaire (Minot 1996)

26.	How much do you pay out in wages each month for your employees? _____
	The goal of Q26 is to measure the average monthly cost of labor. If the owner cannot answer this question, try to rephrase the question in terms of wage per day, days per month for each worker, and number of workers. For example:
	How much do you pay your employees per day on average?
	How many days per month do your employees work on average?
	How many paid workers do you have?
	Multiply these three figures and put this number in box for Q26.

Figure 13: Raw Material Cost Questions from Laos Questionnaire (Minot 1996)

23. What two products do you sell the most? (fill in the first column below)		
24. What is the sales price of each product (fill in second column below)		
25. What is the cost of raw materials for one unit of each product? (fill in third column below)		
1	2	3
Product	Sales Price	Raw material cost
1.		
2.		

Other Operating Costs. In terms of general operating costs, only information on monthly electricity costs was collected. To determine the cost of raw materials, three questions were asked as illustrated in figure 13. In this case, only the two products with the highest sales volume are recorded.

Fixed Assets. Proprietors were asked to estimate the current value of raw materials, furniture/fittings, machinery and equipment, the structure, land, and finished goods if they were sold today. This method automatically accounts for depreciation and inflation, as pointed out by Minot.

Strengths and Weaknesses. Minot states that neither of his profit measures are ideal since “net income suffers from the lack of data on other costs and is based on a rough approximation of depreciation charges” (Minot 1996, p. 44). As for the wage data, the validity “depends on the owner’s ability (and willingness) to estimate the salary they implicitly pay themselves” (Minot 1996, p. 44). In spite of these weaknesses, the two measures gave very similar results.

Minot used a 20 percent depreciation charge for equipment and a five percent depreciation charge for buildings. This may be both over and underestimated since the lifetime expectancy of different types of capital can vary significantly.

Overall, this was a relatively simple method to calculate profits that relied on about 20 questions including the individual components of each question. The method addresses the issue of seasonality and uses an innovative way to examine profits using the wage payments.

I. Zimbabwe (Barnes and Keogh 1999)

Background. In 1997, the AIMS project carried out a baseline survey of microenterprises in Zimbabwe. The purpose of the survey was to determine the impact of loans provided by Zambuko Trust. A questionnaire was administered to 691 enterprises including 244 new clients, 149 repeat clients, and 298 non-clients. A follow-up survey is planned for 1999.

Definition of Profits. Net revenue was measured from one question on the questionnaire. In particular, proprietors were asked “after considering all cash received and all expenditures, how much net revenue did you earn last calendar month/operating period, from the business (include items used by household).” Enumerators helped the proprietor to make this estimate based on information they had just been given about sales.

Sales. Information on sales was collected, but it was not used in the profit calculation. Proprietors were asked about their sales in the month prior to the survey. For traders, each respondent was asked to list the three items that provided the most revenue, the number of each item sold, the purchase price, and the sale price. The table used to collect this information was similar to the table used in the Kenya survey (see figure 5 above). For non-traders, respondents were asked for the number of units sold and the selling price during the last month for the three items that provided the most revenue.

Labor Costs. The survey collected detailed information on all types of employees working for the firm. This included paid, unpaid, and casual labor. This information was not used, however, in the calculation of profits.

Other Operating Costs. Information on the cost of inputs for traders was collected in the table on sales as described above. There was no other information on the questionnaire regarding other operating costs.

Fixed Assets. Proprietors were asked to estimate the current financial value of their equipment, machines, furnishings, premises, and tools.

Strengths and Weaknesses. Overall, this study collected some of the components of a full measure of profit, but the actual measure of profit was based on one question. Although a single question may lead to inaccurate answers, proprietors were assisted with the question. Also, the profit question followed the questions on sales and labor costs, which may have helped proprietors to provide a more accurate estimate.

J. Zambia (Copestake et al. 1998)

Background. In 1998, the Centre for Development Studies and M&N Associates, Limited, carried out an assessment of the PULSE microfinance program in Lusaka, Zambia. PULSE provides savings and loan facilities to low-income households of Lusaka. A questionnaire was developed to compare changes in business, household, and individual indicators of 420 PULSE participants. The participants were divided into three groups according to when they had received their loans. One group had not yet received loans, but had been approved. The results from the survey were compared with three other published studies to determine the status of PULSE participants. The study also used semi-structured interviews and focus group discussions with 196 people to examine the reasons behind the changes.

Definition of Profits. Profits were defined as total sales minus total operating costs. Although questions about fixed assets were included in the questionnaire, depreciation was not subtracted from profits. All of the questions related to profit are described below and illustrated in figure 14.

Figure 14: Profit Questions from the Zambia PULSE Questionnaire (Copestake et al.1998)

<i>Round all money values to the nearest thousand kwacha ("pin")</i>		Estimate for the month of March this year	
	<i>Number of days the business operated</i>		
	<i>Average sales per day</i>		
C3.1	What was your total income from sales in the month?		
	<i>Average purchases of goods & raw materials and other inputs per day?</i>		
C3.2	What did you spend in total during the month buying stock, raw materials and other inputs?		
C3.3	What did you spend on wages (cash equivalent, but excluding self)?		
C3.4	What did you pay to <u>private people</u> in rents, security and storage fees?		
C3.5	What did you pay out to <u>government officials</u> in market fees, storage fees, rates and fines?		
C3.6	What did you pay out for electricity and water for your business?		
C3.7	What did you spend on transport in connection with your business?		
C3.8	What did you spend on hiring tools & equipment?		
C3.9	What other running costs did you incur? <i>(specify)</i>		
C3.10	<i>Calculate total monthly costs (sum C3.2 to C3.9)</i>		
C3.11	<i>Calculate total profits (C3.2 minus C3.10)</i> <i>If the MR disagrees then revise sales & costs accordingly</i>		

Sales. The fieldwork was carried out during the months of April through August. All respondents were, therefore, asked to estimate sales for the month of March. This was done using two methods. In the first method, respondents were asked about the number of days the business operated during the month and the average sales per day. Multiplying these together provides the total sales for the month. In the second method, respondents were asked to estimate the total income from sales during the month. It is not clear from the report which of these two measures was used to estimate sales for the month in the final analysis.

Labor Costs. Figure 15 shows the questions related to employment as displayed on the questionnaire. Although this was a very thorough method to determine all of the types of employment used in the business, the information from this section was not actually used in the calculation of profits. Instead, the profits section of the questionnaire asked one question related to this expense, "What did you spend on wages (cash equivalent, but excluding self)?" as illustrated in figure 14 above.

Other Operating Costs. Operating expenses were estimated for the month of March. One question was asked for each category of expenses including inputs, rents, utilities, transport, and other costs.

Figure 15: Employment Questions from the Zambia PULSE Questionnaire (Copestake et al. 1998)

	Job title or name	Male = 1 Female = 2	Household member = 1 Other = 2	Employment status (<i>see codes below</i>)		
				At end of March 98	1 year earlier	2 years earlier
a	Self		1			
b						
.						
.						
n						

EMPLOYMENT CODES:	<i>Irregular or casual (no set time per wk)</i>	<i>Part-time (less than 20 hrs per wk)</i>	<i>Full-time</i>
<i>Unpaid worker</i>	1	2	3
<i>Paid employee</i>	4	5	6
<i>Self-employed</i>	7	8	9
0=not employed at the time (either already left or not yet recruited)			

Figure 16: Fixed Asset Questions from the Zambia PULSE Questionnaire (Copestake et al. 1998)

C4.6	List the three most valuable items of equipment, furniture or tools that you have owned and use for your business(es) during the last two years. Then indicate when you owned them and how many.				
	Description (only count items when they are in working order)	1 Estimated value (thousand kw)	2 March this year	3 1 year before	4 2 years before
a					
b					
c					

Fixed Assets. As mentioned above, information on fixed assets was not used in the profit calculation, but it was collected. Respondents were asked to list the three most valuable pieces of equipment owned and used for the business during the last two years only as shown in figure 16.

Strengths and Weaknesses. The Zambia study used a relatively simple method to measure profits, comprising only 12 questions. In addition, it was innovative to use the information from the 12 questions to calculate profits on the spot. The number was then reported to the respondent. If she or he did not agree with it, the questions were reviewed again so that sales and costs could be revised. This method should cut down on the number of cases with negative

profits. It may also lead to false answers, however, if the proprietor purposely over or underestimates some figures in order to come up with her own estimation of total profits.

The employment section was very thorough. The information from this section, however, was not actually used in the profit calculation. Nonetheless, this section could be used as a model for studies that do want more detailed information on labor costs. The one question that *was* used to determine labor costs in the profit calculation asked for a “cash equivalent.” This assumes that the proprietor can estimate costs of unpaid employees who may receive meals or lodging, which may be very difficult without detailed questions about in-kind payments.

One of the flaws of estimating all sales and costs for one month only is that seasonality is not addressed. For example, if the month of March was a particularly good month for sales, then profits may be overestimated. Similarly, estimating the costs for a specified month may lead to over or underestimation of profits if costs were not typical for that month. Also, the interviews took place from April to August. Because all respondents were asked about the month of March, some proprietors had to estimate profits for the previous month while others had to estimate profits for a period that occurred five months ago. This gap in time is likely to lead to variability in error among respondents. Finally, proprietors may incur daily, weekly, and annual costs. Asking respondents to report costs for one month may be difficult if the costs are not incurred on a monthly basis.

Overall, 17 percent of respondents had a “zero or non-response” to the question on total monthly income and 18 percent had a zero or non-response to the question on total monthly costs. The authors report that “while these average figures provide a rough benchmark, the standard deviations and zero/non-response rates indicate that they hide enormous variation within the sample” (Copestake et al. 1998, p. 26).

K. Mozambique (Benfica 1998; MOA/MSU Research Team 1997)

Background. In 1996, the Ministry of Agriculture and Fisheries in Mozambique and Michigan State University carried out a survey of micro and small enterprises in central and northern Mozambique. The purpose of the study was to provide policy makers with information about the structure of the microenterprise sector and possible areas for assistance. A total of 948 microenterprises were interviewed. In addition, the information from the microenterprise survey was supplemented with a Smallholder Agricultural Survey conducted at the same households.

Definition of Profits. Profits are defined as revenues from sales minus expenditures.

Sales. Proprietors were asked to estimate sales for the last month in operation.

Labor Costs. Labor and all other operating costs for the last month in operation were estimated by the respondent. These costs included raw materials, labor, capital, rents, and interest.

Other Operating Costs. See “labor costs” above.

Fixed Assets. Although the report states that capital is included in the profit calculation, it does not specify how the costs were estimated.

Strengths and Weaknesses. There is not enough information in the two reports to analyze the strengths and weaknesses of the approach used. In addition, the questionnaire was not available. The only obvious flaw is that the study did not address seasonality.

L. Zambia (Parker 1996)

Background. In 1996, Graham Bannock & Partners Ltd. carried out a national survey of microenterprises in Zambia. The purpose of the survey was to examine general characteristics of the microenterprise sector. A total of 5,053 existing microenterprises were interviewed.

Definition of Profits. Profits were defined as “owner’s earnings as well as money remaining for reinvestment in this or other ventures or for personal use” (Parker 1996, p. 22).

Sales. The Zambia survey used the same format as the Kenya survey to collect information on months that were considered high, average, and low in terms of sales (see figure 5 above). Proprietors were then asked how much they make on average in each type of month. Although this information was collected, it was not used in the profit calculation.

Labor Costs. Information was collected on the number of working owners, paid workers, unpaid workers, and apprentices as well as the number of part-time employees in each category. This information, however, was not used in the profit calculation.

Other Operating Costs. No information on specific costs was collected.

Fixed Assets. The survey collected the current value of raw materials, finished goods, hand tools, furniture, machinery, and the building and land if it was owned by the proprietor. This information, however, was not used in the profit calculation.

Strengths and Weaknesses. While some information on sales, labor, and fixed assets were collected, none of this was used in the profit calculation. Instead, the answer to only one question was used as the profit estimate. This question was stated as “After all costs are considered, how much profit did you earn in the business last month?” Clearly this is the most simple method that can be used to estimate profits. On the other hand, however, it is probably the most inaccurate since it relied entirely on the proprietor’s estimate without a detailed account of individual costs. Also, it does not address the issue of seasonality since it asks for profits in the last month.

M. Summary of Empirical Examples

Tables 1 through 5 summarize the different techniques used to measure profits, sales, labor costs, other operating costs, and fixed costs, respectively. In table 1, there are 12 measures of profits or earnings. The simplest measure is to ask the proprietor how much he or she makes after deducting costs. The more complex measures estimate depreciation and deduct this from

revenue along with other operating costs. Taking a completely different approach, two measures look only at earnings as a proxy for profits. While the terms “profits” and “earnings” can be used interchangeably when discussing returns to microenterprises, earnings are measured differently in these studies. The measurement is still complex, but it does not require estimation of sales, operating costs, or fixed costs.

Table 1: Summary of Different Calculations of Profits or Earnings

Author's Term	Calculation	Type of Profit or Estimate
1. Profits	Profits last month estimated by proprietor	Accounting
2. Profits	Sales - operating costs	Accounting excluding depreciation; Returns to all workers
3. Profits	Sales - operating costs - depreciation	Accounting; Returns to all workers
4. Profits	(Sales - operating costs - depreciation) / (# of workers)	Accounting profits per worker
5. Returns	(Wage payments) / (# of workers)	Returns per worker
6. Earnings	(# of paid workers)(avg wage) + 2 (avg wage)(proprietor's labor)	Total wage bill including implicit costs
7. Earnings	Income earned by all family members that work in microenterprises	Total earnings
8. Profits	Annual sales - {[(costs last week) / (sales last week)] * (annual sales) }	Accounting profits; Returns to all workers
9. Net Revenue	Value of microenterprise products consumed by household + money from microenterprise used by household + money left over in microenterprise	Total earnings
10. Value Added	Sales price of all output - purchase price of all inputs	Value added
11. Economic profits	Value added - capital services - non-family labor - family labor	Economic profit
12. Profitability	[(Gross value added - wage bill)] / (capital)	Economic profit; Returns to capital

Table 2 shows that there were nine different methods to estimate sales. Asking the proprietor about sales last month is the quickest method to estimate sales. This may not be reliable, however, since it does not address seasonality. Also, it does not allow the proprietor to estimate sales based on his or her own reference period. The slightly more complex methods ask for sales estimates in high, low, and average months and the number of months for each level of sales. Two surveys developed a special section on the questionnaires for traders only. In these sections, a trading margin for the most important products was developed and used to estimate sales and costs. Although this method addresses the problems associated with measuring sales and costs for traders, it is limited since it can only include a few items.

Most studies estimated labor costs by asking for the amount paid out in wages per month as illustrated in table 3. This method is simple; however, it does not address seasonality and it may be very inaccurate due to recall problems. In the most complex method, each worker was listed along with his or her hours worked, activity, and wages in cash and in-kind.

The most common method to estimate other operating costs was to provide a list of expenses and ask the proprietor how much she paid last month or some other specified time period as illustrated in table 4. Again, two studies developed a section for traders that looked at trading margins for the top revenue-generating products.

Table 2: Summary of Different Methods to Estimate Sales Revenues

Method	# of Questions
1. Sales for the past month	1
2. Number of days in operation last month; average sales per day	2
3. Number of units sold last month and selling price for 3 items that generate most income (for non-traders only)	2
4. Determine product cycle (how often profits incurred) and then asked for value of sales in that cycle	2
5. Value of sales, amount consumed, and amount received in form of goods and services since last visit	3
6. Value of sales in any time period during past month (daily, weekly, monthly); comparison of this month to other months; value of sales in high, low, and average months; number of months of each type of sales	8
7. For traders: three to five items that provide the most revenue, the number of units sold last month, and the sale price	9
8. State if each month of the year is high, low, or average; value of sales in each of these types of months	15
9. List of all items sold, consumed, given away, and stored along with value	13 times number of products sold

Table 3: Summary of Different Methods to Estimate Labor Costs

Method	# of Questions
1. Total payment in wages per month	1
2. Amount paid in wages for time specified by proprietor	2
3. Payment per day; days per month on average; how many paid employees	3
4. Amount paid per month for salaried worker, piece worker, and other types of paid workers based on own time reference period	3
5. Number of workers, days per month and hours per day during high and low season; average wage rate	9
6. Minimum and maximum wage paid per type of worker; midpoint multiplied by number of workers in that classification	9-12
7. Name, time opened and closed each day, activity worked on, number of units produced, hours, date beginning and ending, wages in cash and kind	12 times number of products

Table 4: Summary of Different Methods Estimate Other Operating Costs

Method	# of Questions
1 Electricity costs per month plus raw material costs for two products that sell the most	3
2 Costs for last month for a given list of expenses	7
3 Costs for product cycle for list of expenses	7
4 Costs last week for a given list of expenses	9
5 Amount paid for a given list of expenses for time period specified by the proprietor	12-15
6 For traders: Top five products in terms of sales; listed sale price, purchase price, amount sold, units of sales per unit of purchase	25
7 Brand name, cash and credit purchases for a list of 14 items	56

There were several methods for estimating fixed costs as illustrated in table 5. A prepared list of items can be read to the proprietor or the proprietor can be asked to provide her own list. The cost of each item is then collected at the original price or at the current price if it were sold today. Both of these methods present problems. If the original price is collected and then inflated to current prices, the inflated figure may not accurately represent the true inflation for that particular item. Estimating the value of the item if sold today assumes that the proprietor has a good idea of the current value, which may not be true. Another option when estimating the value of fixed assets is to ask how long the proprietor has owned the item or how many years will it continue to be in use. The most complete methods to estimate fixed costs incorporate the lifetime expectancy into the capital depreciation charges.

Table 5: Summary of Different Methods to Estimate Fixed Costs

Method	# of Questions
1. Amount spent on initial equipment and buildings and amount spent later	2
2. Three most valuable items owned and used by microenterprise in last two years plus estimated current value	6
3. Current value of a list of five to six items	6
4. Original purchase price of list of six items; converted to capital services flow using annuity factor	6
5. Original purchase price for list of assets; inflated to current prices; converted to flow using annuity factors	6
6. Open list asking for original purchase price and number of years owned; inflated to current prices and then depreciated	15

IV. MEASURING NET WORTH

As described above, multiple-visit surveys are considered more appropriate than single-visit surveys to measure profits. This is because profit is a “flow” variable. It changes over the course of the day, week, month, and year. For this reason, it is best to try and estimate profits over the course of one calendar year that covers all agricultural and holiday seasons. Net worth, however, is a stock variable. It measures the value of the business at one point in time. Because it is a stock variable, a single-visit survey is sufficient.

Net worth is defined as assets minus liabilities. To fully measure net worth, information on current assets, fixed assets, and outstanding loans or debts must be collected. Although measuring net worth does not require multiple-visit surveys, it is more difficult to collect than profit data in some ways because proprietors may be more sensitive about the information. For example, current assets include cash and deposit or checking accounts. The respondent may not want to reveal this information to the enumerator, particularly if others are present at the interview. Dunn tried to gather this type of data in Peru. It was removed, however, “due to the sensitivities revealed during the questionnaire development phase of the research” (Dunn 1999, p. 35).

In addition to the sensitivity of this information, fungibility is also a significant problem. If the proprietor does have cash or a checking account, it cannot necessarily be associated with the business. Instead, cash and checking accounts probably reflect savings from all sources of household income rather than the business alone.

Finally, net worth is difficult to measure because it requires information on the value of current inventory. For traders, this may include hundreds of items that need to be valued.

Because of the problems listed above, there are very few examples of net worth in the microenterprise literature. Although many studies measure some of the components of net worth, such as fixed assets or outstanding loans, most studies do not estimate the complete measure of net worth. As pointed out by Little (1997, p. 3), “the transaction costs (in terms of time and resources) of gathering data and calculating household and/or enterprise ‘net worth’ exceed the benefits of added precision and verification (also see Barnes 1997; Dunn 1996b).”

A. Measuring Components of Net Worth

Because full measures of net worth are not available in the microenterprise literature, the measurement of individual components of net worth are reviewed below. The background for each study is covered in the previous section on profits.

Inventory. Using data from five studies done in the 1970s, Liedholm and Mead (1987) examine working capital, which they define as cash, short-term securities, accounts receivable, and inventories. In their final analysis, however, they report that only inventory is included in their estimates of working capital since the other components are too difficult to measure. Overall, they show that inventories account for a smaller share of total capital than fixed assets. Nonetheless, the variation in inventory’s share of capital was large. For example, only five percent of total capital was in the form of inventory in Honduras compared to 29 percent in Jamaica.

Minot (1996) and Parker (1996) asked about the current value of finished goods and raw materials in the Laos and Zambia studies, respectively. Both surveys used only two questions to ask for the proprietor’s estimate of the value of finished goods and raw materials if they were sold today. Obviously the proprietor’s estimate is not as accurate as a complete inventory of all goods in stock. It may not be possible, however, to conduct a complete inventory given budget constraints or if the proprietor is not willing to cooperate.

Savings. While many studies ask respondents about savings, very few studies ask for the actual amount of savings. For example, the Mali and Zambia PULSE studies asked whether savings had increased or decreased and how savings were used (McNelly and Lippold 1998; Copestake et al. 1998). In the Peru, Zimbabwe, and Zambia studies, respondents were asked if they had any savings and in what form (e.g., bank, credit society, cash at home) (Dunn 1999; Barnes and Keogh 1999; Parker 1996).

In three studies, proprietors were asked about the actual amount of savings and cash. First, the LSMS studies typically have one component that covers credit and savings. In this section, respondents are asked to report the current value of their savings in state banks, other banks, credit cooperatives, bonds, stocks, cash, and gold. In the Laos study, respondents were asked “how much cash does your business have today?” (Minot 1996). Finally, the Uganda study asked for the current amount of savings in various forms as illustrated in figure 17

(Barnes et al. 1998). The studies do not report how many respondents were willing to answer these questions. One hint of the sensitivity of these questions is that are placed on page 107 of a 108-page questionnaire in the Vietnam LSMS study.

Two studies that are currently being developed by the International Food Policy Research Institute (IFPRI) in Malawi and Benin try to determine cash available to the business with the following question. “If your business had a good investment opportunity today, how much could it spend?” This type of question helps to reduce the sensitivity of the information since it asks about the cash of the business rather than the proprietor’s personal savings. In addition it may address the fungibility issue since it asks about how much the business could spend without using all of the household savings. The respondent may, however, consider access to credit when formulating their answer, which would no longer provide a good measure of the cash or savings of the business.

Figure 17: Savings Questions from the Uganda Questionnaire (Barnes et al. 1998)

20. Do you (respondent) save in any of these ways? (READ)		
Type of Savings	1=Yes 2=No	Current Amount
1. Post office savings		
2. Individual bank savings account		
3.a. Credit savings group: mandatory payments, loan insurance fund		
3.b. Credit savings group: voluntary savings		
4. Other: SPECIFY		

Figure 18: Debt and Loan Questions from the Laos Questionnaire (Minot 1996)

1. Are you able to purchase inputs for your business on credit? Code: 1) Yes 2) No If yes, How much do you owe your input suppliers as of today?
2. Did you purchase equipment or a vehicle for your business on credit? Code: 1) Yes 2) No If yes, How much do you own the supplier as of today?
3. In addition to these loans, how much money does your business owe to the following? Family Friends Moneylenders Banks

Outstanding Loans or Debts. Direct questions about the amount of outstanding loans or debts are much more common than similar questions about savings. The LSMS studies, for example, ask detailed questions about household loans including how much was borrowed, when it was borrowed, why, the rate of interest, the amount of collateral used, when it is due, the level of

payments, and how much is still owed. More closely linked to the business, the Laos study asks three questions related to outstanding microenterprise debt as illustrated in figure 18 (Minot 1996). These questions cover formal and informal loans as well as credit extended by suppliers. The Zambia PULSE study also asks about outstanding loans and debts to suppliers (Copestake et al. 1998). Other studies ask about the amount of loans received; however, they do not ask for the current outstanding debt.

Accounts Receivable. The Laos, Zambia PULSE study, and national Zambia study each asked about the amount of accounts receivable (Minot 1996; Copestake et al. 1998; Parker 1996). In all three studies, they simply asked how much money is owed to the business today by its customers. Other studies asked if credit is extended to customers, but the actual amount was not recorded.

Fixed Assets. Methods to measure the value of fixed assets were covered in the profits section above. The same methods can be used to measure the value of fixed assets for the net worth calculation; however, less information is needed. When estimating profits, for example, the costs of depreciation over time must be included. For net worth, only the current value of all fixed assets is necessary. In this case, either an inventory of the value of all fixed assets is necessary or an overall estimate by the proprietor of fixed assets.

B. Summary of Net Worth Components

Table 6 summarizes the methods used to measure the components of net worth. Again, there were no studies that developed an overall measure of net worth. Nonetheless, based on the individual components described in this section as well as fixed assets included in the profits section above, it is possible to develop a measure for net worth. This measure would include all current and fixed assets. These components are included below in the discussion of the full and proxy measures.

Table 6: Summary of Different Methods to Measure Components of Net Worth

Method	# of Questions
<i>Inventory</i>	
1. Proprietor's estimate of total value of inventory of raw materials or finished products	1
<i>Cash and Savings</i>	
1. Amount of cash available today	1
2. Current value of savings in a list of different types of accounts	5-7
<i>Debts</i>	
1. Proprietor's estimate of total debt	1
2. Amount owed to a list of various sources	3-7
<i>Accounts Receivable</i>	
1. Proprietor's estimate of total amount owed by customers	1
<i>Fixed Assets</i>	
1. Proprietor's estimate of current value of fixed assets	1
2. Individual list of value of each asset	5-10

V. PROXIES FOR MEASURING PROFITS AND NET WORTH

A. Different Types of Proxies

The word “proxy” typically means a variable that is associated with some other variable that is not available or difficult to obtain. For example, a greater value of fixed assets is sometimes associated with a greater net worth. Similarly, employment or sales are sometimes used as proxies for profits. Dunn (1999) uses all three of these proxies to examine microenterprise characteristics in Peru. She suggests that higher sales may indicate higher profits. Similarly, enterprises with greater fixed assets may be more stable. As for employment, she notes that “higher employment levels... are obviously beneficial for an economy with high rates of unemployment and underemployment” (Dunn 1999, p. 53-54). A repeat study is planned in Peru to measure the changes in these proxies among clients and non-clients of a microfinance project.

There are several studies that have examined these types of proxies through regression analysis. By using this type of analysis, it is possible to determine if greater employment or fixed assets are associated with higher profits when controlling for other factors. For example, a microenterprise may have high profits and a large number of employees. The high profits may be due to other factors, however, such as the type of microenterprise, the location, the education or experience of the proprietor, or the age of the microenterprise. A brief review of the studies that use this type of analysis is presented below.

Liedholm and Chuta (1976) examined profits of microenterprises in Sierra Leone as a function of formal education, age of the business, record keeping, initial capital, source of funds for expansion, and the occupation of the father of the proprietor. The results showed that the relationship between profits and a large initial amount of capital was not statistically significant. Among other variables tested, only three were significantly related to profits. The age of the business and the keeping of business records were associated with higher profits. Finally, if the business used its own funds for expansion rather than an external source of funds, its profits were significantly higher.

Liedholm and Mead (1987) used data from four countries (Jamaica, Honduras, Egypt, and Sierra Leone) to examine factors that lead to higher economic profits using returns to family hours as the dependent variable. Their results showed that returns are positively correlated with the value of production. Specifically, for every one percent increase in the value of production, returns per hour increased by approximately seven percent. Applying this analysis to individual industry groups, they found similar results.

Daniels and Mead (1998) examined profits of microenterprises in Kenya as a function of the age of the business, industry, access to credit, number of paid and unpaid workers, gender and education of the proprietor, and the total value of capital purchased by the business. Using profits based on the actual number of hours worked as the dependent variable, the age of the business was associated with higher profits. Proprietors with a secondary education also made higher profits than those without any education. As for proxies that are typically associated with profits, the number of paid workers was positively associated with profits whereas the

number of unpaid workers was negatively associated with profits. The amount of invested capital was not significant. The same independent variables were used with profits based on a full-time equivalent (45 hour week) as the dependent variable. In this case, paid workers were negatively correlated with profits. The significance of the other independent variables did not change.

Benfica (1998) examined profits of microenterprises in Mozambique as a function of sector, age of the enterprise, number of workers, gender, years of schooling, participation in a group, amount of land owned, and the district. He found that a higher number of employees was significant and positively related to profits in all zones. Other variables that were significant in some zones, but not others were participation in a trade group, gender (males made greater profits), and education.

Vijverberg (1988) used data from Côte d'Ivoire to look at numerous factors that affect profits. He showed that the hours of work by family members was positively correlated with profits. The number of unpaid workers outside of family members, however, was not significant. The total value of capital stock was significant and positively correlated with profits. Finally, the younger microenterprises tended to make higher profits than older microenterprises.

Using data from Zimbabwe, Daniels (1995) estimated employment growth as a function of profits, capital, gender, size of the firm, sector, and location. Two separate regressions were used to estimate growth in paid employment and growth in unpaid employment as a function of the independent variables. The results showed that an increase in profits is associated with an increase in the number of paid employees. Unpaid employment growth, however, was not associated with an increase in profits.

As discussed above, employment and capital are often used as proxies for profits or net worth. Combining the results from the studies above indicate that these variables are not consistently associated with higher profits when controlling for other factors. Capital investment was significant in Côte d'Ivoire. It was not, however, significant in Kenya or the four countries examined by Liedholm and Mead. The level of employment was significant in Mozambique for all types of workers combined. In Kenya, paid workers were both positively and negatively correlated with profits depending on the definition of the profits whereas unpaid workers were negatively correlated with profits. In Côte d'Ivoire, family labor was significant, but in Zimbabwe, it was not significant. Some of these inconsistencies may arise from variations in the definitions and measurement of the variables and the control variables used in the analyses.

B. Full Measures and Proxies to be Used in this Study

Although a proxy is typically a measure of some variable that is associated with a desired variable, as described in the previous section, the purpose of this study is to develop proxies that are numerical estimates of profits and net worth. In other words, each proxy will measure the same variable but with a different set of questions. In order to test these proxies, information based on the full measures of profits and net worth will also be collected. The full measures of both profits and net worth are described below followed by four proxies for each variable.

1. Full and Proxy Measures for Profits

The most ideal method to measure profits is through accurate record keeping on a daily basis. As mentioned earlier, however, the majority of microenterprises do not keep records. The next best option is through direct observation over an extended time period. Because this option is costly and time consuming, it has not been used for studies that measure profits. Instead, the most complete methods of profit measurement that have been done involve multiple-visit surveys over the course of a year. In the 1970s, five studies were conducted using this method in Bangladesh, Egypt, Honduras, Jamaica, and Sierra Leone (see Liedholm and Mead 1987). The studies involved two phases. In the first phase, a complete census of all microenterprises in the survey areas was conducted. In the second phase, a small group of microenterprises was randomly selected for twice-weekly visits over the course of a year to collect data on sales, operating costs, and labor. A single-visit survey was also administered to the same microenterprises in the second phase to gather stock data such as the value of fixed assets and inventories.

Obviously, the methods used in the five studies described above are costly and time consuming. Because most agencies do not have the resources to conduct multiple-visit surveys, single-visit surveys are used instead. In these surveys, data are typically estimated for the past month or year through recall, which may lead to inaccurate answers. Because the development of cost-effective measures is a primary objective of the research, the full and proxy measures used in this study rely on a single-visit approach.

Table 7 shows the steps to obtain a full measure of profits in a single-visit survey along with a list of short cuts. The full measure includes the use of the four component of profits: sales, labor costs, other operating costs, and fixed costs. Each of these are described below.

Sales. An accurate measure of sales would account for seasonality. Products consumed by the household and given away as gifts would also need to be incorporated into the sales value. The number of questions needed to determine sales could be reduced by excluding seasonality, home consumption, and gift giving. A product cycle could also be determined (see the Mali example above) instead of asking for sales last month.

Labor Costs. A full measure of labor costs in a single-visit survey would include information on all types of employees, their hours worked, and their salaries in cash and in kind. Proxies would include an overall estimate of wages paid last month or the average wage and the number of workers.

Other Operating Costs. Developing a list of weekly or monthly operating costs for all categories of expenses would be the best way to measure operating costs in a single-visit survey. The questionnaire should also have a section for traders to determine their profit margin. Shorter methods would include asking for an overall estimate of monthly operating expenses, asking for average expenses per week or month, or determining the product cycle and asking for costs within that cycle.

Table 7: Full Measures of Profits and Short Cuts

Full Measures of Profits for Single-visit Surveys	Short Cuts
<i>Sales or Output</i> <ul style="list-style-type: none"> – ask whether sales are high, low, or average in each month of the year – ask about average sales level in each type of month – ask about products consumed by the household – ask about products given as gifts – ask about in-kind payments received for goods or services 	<ol style="list-style-type: none"> 1. ask for sales last week or month 2. determine product cycle and then ask for value of sales in that cycle 3. ask about sales in high, low, and average months and the number of each type of month
<i>Labor Costs</i> <ul style="list-style-type: none"> – gather information on all types of employees including months/year, days/month, and hours per day – ask for monetary and in-kind wages for all types of employees – include former employees within the past year 	<ol style="list-style-type: none"> 1. ask how much is paid out in wages per week or month 2. ask how much is paid out in wages per week or month plus the amount paid in-kind 3. ask about average wage per day/week/month and the number of paid employees 4. ask for number of workers, days/month, and hours/day in high and low season; average wage
<i>Other Operating Costs</i> <ul style="list-style-type: none"> – gather weekly or monthly expenditures on all categories of expenses – include section that asks what percentage of each expense is used by business as opposed to household or other businesses – include a special section for traders that estimates their profit margin 	<ol style="list-style-type: none"> 1. ask for the overall estimate of operating costs 2. determine product cycle and ask for costs in that cycle 3. ask for costs in the last week or month 4. ask for costs on average per week or month 5. do not include section for traders
<i>Fixed Assets</i> <ul style="list-style-type: none"> – make a list of all assets – ask for original purchase price – ask for the number of years owned – ask how many years of use left – ask for value if sold today (if not inflating prices) – ask if these are shared by household or other businesses and in what proportion 	<ol style="list-style-type: none"> 1. ask for estimate of the value of all assets combined if sold today 2. ask for estimate of the value of individual assets if sold today

Fixed Assets. To fully estimate the costs of fixed assets, information on each asset is necessary, including the value of the asset if sold today and the number of years of use left. Whether or not the asset is shared with other businesses or the household should also be determined. Short cuts could exclude information on asset sharing. Also, proprietors could be asked for an overall estimate of fixed assets rather than the individual values of each asset.

By combining the various short cuts for each component, there are 120 different proxies that could be developed for profits. Some measures of profits, however, do not use all of the components listed (e.g., fixed assets may not be used in the calculation) or profits may be defined so that none of the components are necessary (e.g., amount of earnings by family members working in the business). Using different definitions of profits, therefore, leads to an even greater number of possible proxies.

The purpose of this study is to focus on a limited number of proxies and test their strength against the full measures. Again, it is important to keep in mind that the full measure may not be the most accurate measure. In this type of study, however, there is no way to test this. Based on the strengths and weaknesses of each measure described earlier, the proxies chosen for this study are illustrated in table 8 along with the number of questions (including sub-components of each question) necessary to compute profits.

The simplest proxy asks for the proprietor's estimate of profits in one question. Since this proxy is used in some empirical studies, it is important to include it in this study to determine if it is reliable. Using Godsey's criteria for evaluating proxies discussed at the end of section II, this proxy is certainly simple, valid, and available (i.e., inexpensive). The reliability of this proxy, however, is certainly questionable.

Table 8: Proxies to Measure Profits

Proxy	# of Questions
Proxy 1 The proprietor will be asked for his or her estimate of profits in a single question.	1
Proxy 2 Based on the LSMS measure of net revenue, ask 3 questions: (1) Value of the product consumed by the household, (2) money generated by the ME and used by the household and (3) any money left over after consuming products of the ME and using money.	3
Proxy 3 Profits will be estimated as sales minus operating costs. No information on family labor or fixed assets will be used. Both sales and operating costs will be based on the last month of operation with some flexibility to specify these on a daily, weekly, or monthly basis. A separate section for traders will not be used.	20
Proxy 4 Profits will be estimated as sales minus operating costs and fixed costs. Sales will be based on averages in high, low, and medium sales months. Operating costs will be based on a list of costs and the amount spent on each per week or month in the last month. A ratio of variable costs to sales will then be determined and applied to high, low, and average months for operating expenses. Fixed assets will be estimated as the value if sold today and then depreciated using a straight-line method of 20 percent for equipment and five percent for buildings if owned by the proprietor. A separate section for traders will be used.	41

The second proxy takes a different approach by asking about the value of enterprise output consumed by the household, money from the enterprise used by the household, and any money left over. It is based on the LSMS measure of net revenues. In reviewing this measure along with others estimated from the LSMS data sets, Vijverberg (1991, p. 29) says "it appears to be the cleanest, although there is hardly a rigid standard in these data to compare this measure with." Although this proxy is also simple and available according to the evaluation criteria, it may not provide very accurate estimates. Also, it may not be considered valid since it is not a true measure of revenues minus costs. One advantage of this measure is that it avoids estimation of sales, fixed assets, and operating costs plus all of the recall problems associated with these components.

The third proxy approaches a full measure, but it does not include depreciation of fixed assets. Again, it is important to test this type of proxy since it is a common technique used in many studies. While this proxy is not as simple or available as the first two, it may be more reliable since it includes more information. Furthermore, the majority of microenterprises do not have expensive fixed assets, so this omission should not affect the overall estimate significantly. Finally, it is also a valid proxy since it includes the main components of profits.

The most complex proxy involves 41 questions and addresses several issues that are not included in the other proxies. These include depreciation, seasonality of sales, and a separate section to estimate input costs for traders. It is very close to the full measure, but it will not cover items consumed or given away by the household, detailed information on labor costs, or information on sharing of fixed assets with other businesses or the household. This proxy is by far the least simple and available according to the evaluation criteria. As for reliability, the review of the empirical studies showed that more information does not necessarily lead to better estimates. In terms of validity, however, this is the most valid proxy since it includes all components of profits.

All of these proxies will be tested against the full measure of profits. Appendix 1 describes the field plan for the test and appendix 3 provides the questionnaire. The results of the field test will be presented in a separate report.

2. Full and Proxy Measures for Net Worth

Table 9 shows the steps to obtain a full measure of each component of net worth along with a list of short cuts. The full measure includes the use of the five components of net worth: inventory, cash and savings, accounts receivable, outstanding debts, and fixed assets. Each of these are described below along with the short cuts.

Inventory. A full measure of net worth would include an inventory of all raw materials and finished products. Because this is time consuming, however, most studies ask for an overall estimate of inventory from the proprietor.

Cash and Bank Accounts. The amount of cash on hand from the business plus all savings accounts associated with the business should be included in a full measure of net worth. This could be done by making a list of each type of account and the amount of money in each account. As a short cut, the proprietor could be asked about the overall estimate of cash and savings for the business or how much the business could spend if it had a good investment opportunity.

Accounts Receivable. A full measure of the amount of money owed to the business would include a list of all possible sources of accounts receivable and an estimate of the amount owed. A short cut would ask for the proprietor's estimate of the total accounts receivable.

Table 9: Full Measures of Net Worth and Short Cuts

Full Measure of Net Worth	Short Cuts
<i>Inventory of Finished Products and Raw Materials</i> – use a worksheet to list all products and the value of each	1. ask the proprietor for the estimate of all inventory combined if sold today
<i>Cash and Bank Accounts</i> – make a list of all types of savings accounts and ask for the amount in each that are associated with the business – ask for the amount of cash on hand from the business	1. ask how much cash and savings the business has today 2. ask how much business could spend today if it had a good investment opportunity
<i>Accounts Receivable</i> – make a list of all possible types of accounts receivable (customers, traders, family)	1. ask for proprietor's estimate of total accounts receivable
<i>Outstanding Debts</i> – make a list of all outstanding debts including credit extended by suppliers, informal creditors, and formal creditors	1. ask for proprietor's estimate of total outstanding debt
<i>Fixed Assets</i> – make a list of all assets – ask for value if sold today – ask if these are shared by household or other businesses and in what proportion	1. ask for estimate of all assets combined if sold today 2. ask about the value of individual assets if sold today

Outstanding Debts. A full measure would, again, include a full list of all possible types of debts, including the credit extended by suppliers, informal debts, and debts to banks or other formal institutions. A possible short cut would be to ask for an overall estimate rather than listing each source of debt.

Fixed Assets. A list of all fixed assets and their value if sold today is necessary for a full measure of fixed assets along with the proportion of the time that the asset is used by the business. Short cuts to estimate fixed assets include an overall estimate of assets or the value of each asset without considering if it is shared by other household activities.

In the case of net worth, there are only four different proxies that can be developed by combining the various short cuts for each component. Again, however, some measure of net worth may not use all of the components so that more proxies may be developed based on a limited set of information.

Table 10: Proxies to Measure Net Worth

Proxy	# of Questions
Proxy 1 The proprietor will be asked for his or her estimate of net worth in a single question	1
Proxy 2 Net worth will be based on the estimate of fixed assets only. This will be obtained through a list of assets and their value if they were sold today.	7
Proxy 3 Net worth will be estimated as fixed assets plus inventory plus accounts receivable minus outstanding debts. Again, a list of fixed assets and their value if sold today will be obtained. Inventory will be based on the proprietor's estimate of the total value. Accounts receivable will be based on the proprietor's overall estimate. The amount of all outstanding debt will be estimated using a list of possible sources of debt.	16
Proxy 4 This will include all of the components of proxy 3 above along with the cash of the business using the IFPRI method of asking about the amount of money available to invest in a new opportunity for the business. This proxy will be very close to the full measure, but it will not determine if fixed assets are shared by the household or other businesses. Also, it will include the overall estimate of inventory rather than the detailed worksheet calculation.	17

Based on the strengths and weaknesses of the short cuts described in an earlier section, table 10 shows the proxies that have been chosen for this study. Again, the simplest proxy will be based on one question that asks for the proprietor's estimate of net worth. According to the evaluation criteria, this proxy is both simple, available, and valid, but it may not be reliable. The second proxy will be based on the value of fixed assets only since this is a common method used in some studies. This is slightly more complex, but it is still relatively simple and available. It may also be reliable since the other components of net worth may not be that significant in terms of value. The validity of this proxy, however, is questionable since it does not consider all of the components of net worth. The third proxy approaches a full measure of net worth by including inventory, fixed assets, accounts receivable, and outstanding debt. It will not, however, include cash or savings from the business, since this is the most sensitive information. Finally, the most complex proxy will include all of the components of the third proxy plus the cash or savings of the business. Because this is sensitive information, it will be placed at the end of the questionnaire to avoid distrust or a lack of cooperation early in the interview. These last two proxies are much more complex and less available. They are, however, more valid than the first two proxies. Whether they will be more reliable, however, is questionable just as in the case of the more complex proxies for profits.

Again, these proxies will be tested against the full measure of net worth that is described in the left-hand column of table 10. The results will be presented in a separate report.

VI. CONCLUSIONS

This paper represents the first phase of a project to develop proxies for profits and net worth. Based on a review of empirical literature on the measurement of profits, the paper shows that there are numerous ways to define profits as well as numerous ways to measure the four main components of profits: sales, labor costs, other operating expenses, and fixed costs. Combining all of the possible methods to measure each component, there are more than 120 proxies that could be developed for profits. The purpose of this study, however, is to examine four proxies with varying degrees of complexity and cost. The simplest proxy will, therefore, be based on one question only compared to the most complex proxy that will involve 41 questions. Three of the proxies will focus on profits and its components while one proxy will look at the how much money is used by the household, how much of the business stock is consumed by the household, and how much is left over. These proxies will be tested against the full measure of profits, which will be incorporated into the questionnaire.

Although there were only a limited number of empirical examples of the measurement of microenterprise profits, there were even fewer examples of the measurement of net worth. In fact, there were no studies that attempted to measure the full value of net worth. Instead, most studies examined only certain components of net worth. This paper, therefore, reviewed those components: inventory, cash and bank accounts, accounts receivable, outstanding debts, and fixed assets. Combining all of the possible short cuts for these components only four proxies could be developed. If some of the components are excluded, however, more proxies could be developed.

Similar to profits, the simplest proxy for net worth will be based on one question. The most complex proxy will be based on 17 questions. One proxy will estimate the value of fixed assets only. A more complex proxy will include inventory plus accounts receivable. Finally, the most complex proxy will be the only proxy to include the cash of the business, since this is the most sensitive information. Again, these proxies will be compared to a full measure of net worth, which will be incorporated into the questionnaire.

The field plan to test the proxies described above is included in appendix 1 along with an estimation of resources for the field study and the questionnaire in appendices 2 and 3, respectively. Approximately 350 microenterprises will be interviewed in urban areas and small towns in Zimbabwe. The microenterprises in the survey will include all types of income-generating activities that employ up to three workers including the proprietor, unpaid family workers, paid workers, and apprentices. The sample will be based on a stratified, one-stage cluster sampling technique whereby all houses and places of business will be enumerated in the selected geographic areas. Based on the sample size and selection techniques, the profit calculations should fall within 20 percent and 26 percent of the mean level of profits with a 90 percent confidence level in urban areas and smaller towns, respectively.

Following the field test of the proxies, the data will be analyzed and presented in a separate technical note. The proxies will be compared to the full measures of profits and net worth using

the Pearson correlation coefficient, rank correlations, within-enterprise ranking, and a measure of the relative magnitude of the differences in the proxies.

The goal of this project is to provide alternative methods to measure profits and net worth that are cost-effective, efficient and reliable. Based on the results of the study, governments, donors, and practitioners should be able to use these proxies with a greater degree of confidence.

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APPENDIX 1:
PLAN FOR FIELD TEST

APPENDIX 1 - PLAN FOR FIELD TEST

As described in the introduction, the third objective of this study is to provide an empirical test of the alternative measures of profits and net worth and to analyze the results. This appendix describes the plan for the empirical test. Section 1 discusses the selection of a country for the empirical test followed by the sample size issues in section 2. The sampling frame, types of microenterprises to be included in the survey, and the sample selection are covered in sections 3, 4, and 5, respectively. Section 6 presents the time frame for the survey and the local consulting firm responsibilities. Section 7 provides a brief plan for the statistical analysis. The projected level of human and other resources and the questionnaire are presented in appendices 2 and 3, respectively. The analysis of the results will be provided in a separate technical note.

1. COUNTRY SELECTION

The best option for this activity is to return to a country where profits of microenterprises have been measured in the past. Most recently, four nationwide studies of microenterprise profits were conducted in Kenya (Daniels et al.1995), Laos (Minot 1996), Zambia (Parker 1996), and Zimbabwe (McPherson 1998). By returning to one of these countries, there are several advantages that can be gained:

- *Standard deviation of the mean value of profits can be estimated for the population: In order to choose an appropriate sample size prior to a survey, it is necessary to have some estimate of the standard deviation of the mean level of profits in the population. This estimate can be taken from the earlier surveys.*
- *Use of local consulting firms with previous experience: In each country where the surveys were administered, a local consulting firm was used to handle all of the logistics including selection of enumerators, training, duplication facilities, etc. If these same firms are available, they will be able to provide better services based on their experience with microenterprise surveys*
- *Use of the same sampling frame from earlier surveys: In each of the countries mentioned, a stratified, one-stage cluster sampling technique was used (see section 5 on sample selection below for more detail). In this field activity, which is much smaller in scope, a subset of clusters from the original surveys can be randomly selected.*

Because the advisory group preferred that the survey be conducted in Africa, this left the three countries of Kenya, Zimbabwe, and Zambia. In these three countries, the surveys were coordinated by Kenya Rural Enterprise Program (KREP), Research International Zimbabwe, and AGMMARK, respectively. All three provided good support according to the survey managers. Making a final choice among these three countries was, therefore, guided by the sample size issues discussed below.

2. SAMPLE SIZE

To determine the appropriate sample size, the amount of error that can be tolerated and the probability with which this error bound can be expected to hold must be specified. In this case, a tolerable error level of a profit measure that falls within 20 percent of the mean with a 90 percent confidence level can be specified. In other words, the results will yield estimates that the error [sample mean minus the population mean] does not exceed 20 percent of the population mean value of profits 90 percent of the time.⁵ The formula for the appropriate sample size is

$$n = \left[\frac{z_{\alpha/2} \sigma}{d} \right]^2$$

where:

- n = required sample size
- $z_{\alpha/2}$ = standard normal probability value of a two-tailed test
- σ = standard deviation of the population mean
- d = tolerable error measured in absolute terms

In this particular case, $z_{\alpha/2}$ will be equal to 1.64 for the 90 percent confidence level. The standard deviation will be estimated from the surveys in each country and d will be 20 percent of the mean value of profits generated from the surveys. Table A.1 below shows the required sample size for the sample characteristics described.

Due to budget limitations, the advisory group decided to narrow the characteristics of the sample to include urban areas and small towns only and microenterprises with up to three workers (see discussion below in section 4). Assuming that the standard deviation of profits becomes smaller as you narrow the characteristics of the sample, the required sample size should also become smaller. This is not necessarily the case, however, if a particular group of microenterprises has a larger standard deviation as illustrated for Zimbabwe and Zambia in table A.1.

Given these results, the decision on the country was narrowed down to Kenya or Zimbabwe. In addition to the fact that the sample size is smallest in Zimbabwe, a final consideration was that the third round of the national baseline survey of microenterprises in Kenya will take place at the same time as this field test. This may pose a problem for any other fieldwork in Kenya related to microenterprises since there may be competition for the same resources (KREP and enumerators). There may also be too much overlap or respondent fatigue in the field if we used the same clusters. Based on this factor and the availability of the consulting firm, Zimbabwe was chosen for the field test.

⁵ Typically the tolerable error level is specified in absolute terms rather than percentage terms. In this case, the average profit level from the earlier surveys can be used to specify an absolute value that represents 20 percent of the average value.

Table A.1. Required Sample Sizes for Three Different Countries

	Required sample sizes for a 90% confidence level that the error does not exceed 20% of the mean value of profits from the original baseline surveys.		
	Kenya	Zambia ⁶	Zimbabwe ⁷
All MEs with 10 or fewer workers	8,471	22,290	388
All MEs with up to 3 workers ⁸	1,015	41,363	390
All MEs with up to 3 workers in urban areas only ⁹	649	1,886	274

3. SAMPLING FRAME

In order to have a representative sample, a sampling frame for the population in question must be used. As mentioned above, the survey in Zimbabwe used a stratified, one-stage cluster sampling technique that was representative of all types of microenterprises across the country. By returning to Zimbabwe, a subset of clusters from the urban areas and larger towns can be selected.

Other sampling frames were considered, such as the client list of a microenterprise credit agency. This type of sample frame, however, would not provide a representative sample of microenterprises, reducing the strength of the results. In this particular type of field activity, it could be argued that representativeness is not necessarily an issue since the objective is not to estimate profits for all microenterprises in the country. Instead, the objective is to compare several proxies. Nonetheless, the more the survey is limited, the less that can be said about the usefulness of the proxies for different types of microenterprises. If microenterprises that received some type of credit had been used, for example, the proxies would be tested only on those microenterprises that happen to meet the criteria of the lending agency.

4. TYPES OF MICROENTERPRISES TO BE INCLUDED IN SURVEY

In early discussions about this project, the advisory group talked about the possibility of limiting the survey to certain types of microenterprises, such as trade or manufacturing. Obviously there is a very different cost structure for these two broad categories of

⁶ The extremely large sample sizes in Zambia are due to the high standard deviation of the mean level of profits. This may be explained by the fact that only one question on the questionnaire was used to determine profits in Zambia. Proprietors may have grossly under or over estimated their profits.

⁷ There were five observations in Zimbabwe where the profits were over 52 times greater than the average level of profits. Since these seemed unreasonably large, they were removed to determine the appropriate sample sizes for Zimbabwe.

⁸ The term “workers” includes working proprietors, paid workers, unpaid workers, and apprentices.

⁹ Urban areas are defined as follows. In Kenya, urban includes Nairobi, Mombassa, and all other cities with more than 10,000 inhabitants. In Zambia, urban includes the ten largest cities. In Zimbabwe, urban areas include high-density urban areas and small towns with populations under 20,000. Although there is no defined lower limit for smaller towns, the population in these towns during the 1992 census ranged from 1,600 to 20,000 with the average size of about 9,000 inhabitants.

microenterprises. In the 1995 Kenya survey, this was handled by having a separate section on the questionnaire that had questions for traders only (Daniels et al. 1995). All other questions applied to all types of microenterprises, including traders. If the survey were limited to traders or manufacturers only, this would limit the generalizability of the proxies to different types of microenterprises. On the other hand, the results would be stronger for that particular type of ME since the entire sample would focus on it.

Another possibility that was discussed was to limit the survey to certain types of microenterprises. Three of the most common types in the six countries in southern and eastern Africa where baselines were administered include traders of agricultural produce, grocers, and vendors of food. This became complicated, however, since it is unclear exactly which microenterprises to include in the sample. For example, are both vendors and retailers of agricultural produce included? What is the difference between a kiosk, a grocer, and a general trader? Is a vendor of sweets considered a vendor of foods? Trying to narrow down the survey to certain types of microenterprises would thus lead to difficulties of definition in the field.

Finally, another possibility was to limit the survey to certain subsectors. This also becomes complicated, since the definition of a subsector includes all types of microenterprises that are related to one product. If the product is an agricultural commodity, for example, microenterprises such as vendors, retailers, processors, and general traders that work with the commodity would have to be included. Again, it would become difficult in the field to determine exactly which microenterprises to include.

Based on all of these issues plus the fact that development agencies typically assist all types of microenterprises, the advisory group decided to include all types of microenterprises in the survey.

As mentioned above, the advisory group also decided to limit the sample to urban areas only and microenterprises with up to three workers. Including urban areas only reduces the travel costs in the field and the time to move from house to house. The advisory group had substantive discussions about the tradeoffs of eliminating rural areas from the sample. Although it was agreed that a food vendor in a rural area would have the same cost structure as a food vendor in an urban area, there were other issues to consider. For example, most microenterprises in rural areas are part of an agrarian-based household. Rural microenterprises are, therefore, more likely to be seasonal in nature and require a proxy that includes seasonality issues. In Zambia, for example, rural microenterprises were open 9 months per year on average compared to urban microenterprises that were open 12 months per year. In Zimbabwe, however, there was no statistically significant difference between the number of months that rural and urban microenterprises operated throughout the year. It was finally agreed that the sample would include urban areas and smaller towns only.

Limiting the sample to microenterprises with up to three workers also involves a tradeoff. The proxies will not be tested on larger microenterprises; however, this was not considered a serious problem for several reasons. First, most development agencies typically help smaller microenterprises with three or fewer workers. Second, a proxy that works for a microenterprise with three workers will probably work just as well for microenterprises with four to ten workers and possibly more. Finally, 94 percent of all microenterprises in Zimbabwe had one to three

workers (among microenterprises with one to ten workers). Since microenterprises with one to three workers represent such a large proportion of all microenterprises, this choice was considered justified.

5. SAMPLE SELECTION

In 1991, 1993, and 1998, the USAID-funded GEMINI project conducted three national surveys of microenterprises in Zimbabwe (McPherson 1991; Daniels 1994; McPherson 1998). Each time, the surveys used a stratified, one-stage cluster sampling technique. This involved three steps. First, the country was divided into eight strata based on population density and commercial activities. Urban areas were defined as cities with more than 20,000 inhabitants as estimated by the 1982 census. Within this group, there were four strata: high-density areas, low-density areas, commercial districts, and industrial areas.¹⁰ The remaining four strata in rural areas included small towns, growth points, district councils, and rural councils.¹¹ Second, a random sample of enumeration areas (EAs) within each stratum was selected. The EAs were based on geographic areas that were delineated by the Central Statistics Office for the national census. Third, all households in each selected EA were approached. If a household had an enterprise, a questionnaire was administered. In addition, all mobile businesses and businesses located outside of households were interviewed for the survey.

The plan for this survey is to return to a subset of enumeration areas from the GEMINI surveys from urban high-density areas and smaller towns.¹² As mentioned above, this will automatically generate a random sample since the original EAs for the GEMINI surveys were selected randomly. To select the EAs, a decision had to be made regarding how many EAs to select from each stratum and an assumption had to be made about the change in the number of microenterprises in each EA. The 1998 survey observed that there was an increase of 29.6 percent of microenterprises in urban high-density areas and an increase of four percent in smaller towns from 1993 to 1998. These increases are taken into account below.

As noted above in section 2, a sample size of 274 microenterprises was required when combining all microenterprises that had one to three workers in urban areas and small towns only. If, however, the analysis will be broken down by stratum, the required sample size per stratum must be determined using the same formula given above in section 2. A 90 percent confidence level and a 20 percent margin of error will still be used. The only change is that the standard deviation of profits *within* the stratum rather than the entire population of microenterprises must be used. Substituting the standard deviation of profits within these two strata into the formula gives the required sample size stated in table A.2 below. This table also

¹⁰ High-density areas are typically inhabited by low-income households while low-density areas are inhabited by high-income households.

¹¹ Growth points are towns designated by the government to promote rural development. Incentives are provided in these towns to promote establishment and growth of businesses. For more information on growth points see Pedersen (1992), Gasper (1988), and Wekwete (1987).

¹² Commercial and industrial areas were excluded from this survey since the types of microenterprises in those areas are not typically assisted by development agencies. Urban high-density areas were excluded because they contain few microenterprises.

shows the average number of microenterprises per EA in the stratum and the number of required EAs to be selected for use in this study.

Table A.2. Number of Enumeration Areas to be Included in the Survey

Stratum	(1) Required Sample Size	(2) Average Number of MEs per EA in the Stratum	(3) Number of EAs to be included in the Survey (1)/(2)
Urban High Density	167	485	.34
Smaller Towns	240	157	1.5

Using a random number table and a list of the EAs in each of the two strata, Budriro #4 was randomly selected as the EA from the urban high-density stratum. The town of Nyanga was randomly selected as the EA for the smaller town stratum. Table A.3 shows the EAs to be included in the survey and the expected number of microenterprises. Because only 167 microenterprises are required in the urban high density stratum and the selected EA may have up to 520 microenterprises, the map of this EA will be divided into three areas and only one randomly selected area will be enumerated. In the smaller town stratum, 240 microenterprises should be interviewed, however, only 138 microenterprises may be in the selected town of Nyanga. Due to budget constraints, another small town was not added. If 138 microenterprises are found, the results will yield a 26 percent margin of error with a 90 percent confidence level.

As in the GEMINI studies, enumerators will move from house to house (including mobile vendors and businesses located outside of homes) and ask if there is an income-generating activity on the premise. If there is, an interview will be conducted. If there is more than one activity on the premise, the enterprise that generates the greatest income will be included in the survey.

Table A.3. Enumeration Areas to be Included in the Survey

Stratum and EA	Expected Number of MEs
Urban High Density – Budriro #4	520
Smaller Towns – Nyanga	134

6. TIME FRAME AND LOCAL CONSULTING FIRM RESPONSIBILITIES

According to the scope of work, the survey should be completed by September 30. Depending on the availability of a local consulting firm, the survey should, therefore, take place in August or September. The following table lists the activities that will take place over a four-week period. The schedule assumes a five-day work week during this time.

Week	Activity
1	Finalize survey details: sample selection, maps, training facilities, itinerary for two teams, etc.
2	Training of two supervisors and eight enumerators
3	Field Interviews
4	Field Interviews

Prior to the field activities, the local consulting firm will be responsible for the following activities:

Hire two supervisors and eight enumerators¹³
Hire two drivers for the two weeks of field work
Hire one data entry person
Obtain maps of enumeration areas
Secure training facility for ten enumerators plus data entry person¹⁴
Purchase training materials (notepads, pencils, erasers, bags, calculators)
Arrange for lunches during training period
Secure office space for data entry and survey headquarters
Rent one computer for data entry and purchase disks
Reserve two vehicles for the two weeks of field work
Arrange for accommodation in Nyanga when the data collection occurs there

During the fieldwork, the local consulting firm will continue to offer support as needed to assist the enumerators and the consultant.

7. PLAN FOR STATISTICAL ANALYSES

The proxy measures will be compared to the full measure of profits and net worth. It will be assumed that the full measures are the most accurate. However, the only way to be certain that the full measures are the most accurate is by direct observation through daily visits or accurate record keeping by the proprietor over the course of a year. Because neither of these are feasible given the budget and time constraints, this shortcoming should be kept in mind.

As a first step, the mean and standard deviation of the proxies will be compared to the full measures for all microenterprises combined. The analysis will then be broken down by stratum (urban versus small town) and by sector (type of microenterprise) to determine if the proxies work better in certain areas or for certain sectors. The Pearson correlation coefficient will then be used with the same breakdown to measure the joint variation of the proxies and the full measures. A higher degree of correlation will indicate better performance of the proxies. Correlation coefficients, however, can be affected by extreme outliers and produce misleading results. Scatter plots will therefore be produced to look for outliers that may affect the results. In addition, the proxies and full measures will be tested using rank correlation statistics with the Kruskal-Wallis test. In this type of non-parametric test, the data are replaced by their ranks so that outliers have less influence. The null hypothesis for this test states that the “probability distributions generating the observations under the various treatments are identical” (Rice 1988, p. 407).

In addition to the standard deviations, Pearson correlations coefficients, scatter plots, and rank correlations, two other analyses will be done: (1) within-enterprise rankings of the proxies and full measures, and (2) a measure of the relative magnitude of the differences in the proxies and full measures. The within-enterprise ranking is done by ranking each measure within each enterprise to see how consistently the proxies rank in relation to one another and the full

¹³ Eight enumerators and two supervisors will be trained. Two enumerators will act as alternates in case any enumerators drop out of the survey.

¹⁴ The data entry person should sit in on the training to be better able to proof the questionnaires.

measures. For example, the results will indicate if profit proxy 1 consistently produces the highest estimate of profits or if it exhibits a more erratic pattern that is less reliable. The relative magnitudes of the differences in the proxies and full measures will be a simple calculation of how often each proxy deviates from the full measure in percentage or absolute terms. For example, proxy 1 is three times greater than the full measure in eight percent of all cases. This analysis will also be broken down by sector.

An estimate of the field costs and the level of difficulty encountered for each proxy will be determined through a post-survey questionnaire administered to the enumerators as illustrated below in table A.4. Enumerators will be asked to give their estimate of the number of minutes required to administer each question and the level of difficulty that the proprietor experienced while answering the question. In addition, enumerators will be instructed to record all cases where the respondent refused to answer or could not answer a question on the questionnaire. These will be tallied at the end of the survey and reported as part of the evaluation of each proxy.

Table A.4. End-of-Survey Questionnaire for Enumerators

Question	No. of minutes to administer on average	Level of difficulty the proprietors experienced in answering the question on average			
		None	Some	A lot	Extreme
B5A Mo/Yr					
B5B Days/Mo					
B5C Hrs/Day					
C1 Profit last month					
C2 Profit last year					
C3 Sales last week					
C4 Expenses last week					
C5 Net worth					
C6 Household consumption					
C7 Money used from business					
C8 Money left from business					
D1 Traders - Amount to restock business					
D2 Traders - Info on 10 items					
E1 Non-traders Cost of inputs					
F1 Other operating expenses					
G1 Type of sales in each month					
G2 Value of sales in each month					
G3 Give away or consume part of product					
H1 Fixed asset information					
I1 Value of raw materials					
I2 Value of finished products					
I3 A full inventory of all products and materials					
J1 Employment in the business					
K1 Amount customers owe you					

Question	No. of minutes to administer on average	Level of difficulty the proprietors experienced in answering the question on average			
		None	Some	A lot	Extreme
K2 Amount traders owe you					
K3 Amount family or friends owe you					
K4 Credit stilled owed					
L1 Amount you could invest today					
L2 Cash from business today					
L3 Savings from the business					

APPENDIX 2:

**RESOURCE BUDGET
FOR THE FIELD TEST**

APPENDIX 2: RESOURCE BUDGET FOR THE FIELD TEST

Assumptions			
Sample size	350		
Interviews/day/enumerator	3		
Number of enumerators	8		
Alternate enumerators	2		
Number of supervisors	2		
Total interviews/day	24		
Training period (days)	5		
5-day work week			
Human Resources			
	Days per person	Number of persons	Total Person Days
Supervisors	24	2	49
Enumerators	24	8	192
Alternate enumerators	5	2	10
Data Entry Personnel	18	2	36
Drivers	18	2	36
Other Resources			
Computer rental for RA			
Printer rental			
Vehicle rental (2)			
Gasoline			
Survey office rental			
Photocopies and supplies			

APPENDIX 3:

QUESTIONNAIRE

Assessing the Impact of Microenterprise Services (AIMS)

Microenterprise Survey for Zimbabwe Developing Alternative Measures of Profits and Net Worth Draft July 1999

Use the following codes when you cannot fill in an answer:

RTA Proprietor "Refuses To Answer" the question

DNK Proprietor "Does Not Know" the answer

NA The information is "Not Applicable" to this business

Date proofed:	Date entered:	ID#:
---------------	---------------	------

A SURVEY INFORMATION *(to be filled in prior to the interview)*

A1 Enumerator Name _____

A2 Supervisor Name _____

A3 Cluster Name _____
(1) Budiriro (2) Nyanga

B GENERAL ENTERPRISE INFORMATION

B1 Proprietor Name _____

B2 Enterprise type _____
(fill in code later)

B3 Date started?
A Month _____
B Year _____

B4 Location of business _____
(1) Home
(2) Market
(3) Roadside
(4) Commercial district in shop
(5) Industrial site
(6) Mobile
(7) Other

B5 Working patterns

- A How many months did the business operate during the last 12 months? _____
- B How many days per month did you operate on average during the last year?
 (all days of month = 30)
 (all days except Sundays = 25)
 (Mondays thru Fridays = 20)
- 1 During a high month? _____
- 2 During an average month? _____
- 3 During a low month? _____
- C How many hours per day do you operate on average during the
- 1 High season _____
- 2 Low season _____
- 3 Avg season _____

C PROPRIETOR'S ESTIMATE OF PROFITS AND NET WORTH

- C1 After all costs are considered -- such as transport, cost of inputs, supplies, paid labor -- how much profit did you earn in this business over the past week or month? Do not include the value of payments in kind to family members or payments to yourself.
If the estimate is for the last week, try to find out if that week was high, low, or average. Then try to derive an estimate for the month with the proprietor that covers all weeks in the past month. _____
- C2 (If business is > 1 year old)
 After all costs are considered, how much profit did you earn in this business over the past year? _____
- C3 How much were your sales last week or month? _____
- C3A Time Period (1) week (2) month _____
- C4 How much were your total expenses last week or month? _____
- C4A Time Period (1) week (2) month _____
- C5 Considering all of your inputs materials, finished goods, cash and savings for the business, debts that you owe, debts owed to you, and your fixed assets, how much would you say this business is worth today? _____

C6 Does your household consume or use any of this business' products or services? If yes, what is the value of the products **normally** consumed or used by your household? _____
(Put a zero if nothing has been consumed or used by the household)

C6A Time period
(1) day (2) week (3) month (4) quarter (5) half year (6) year _____

C7 Do you use part of the money you get from this business for yourself or for your household? If yes, how much money from the business do you **normally** use for yourself or your household? _____
(Put a zero if no money has been used) _____

C7A Time period
(1) day (2) week (3) month (4) quarter (5) half year (6) year _____

C8 After making purchases for the business and after using some money for yourself or your household, is there usually any money left? _____
If yes, how much money do you **usually** have left after purchases for the business and using some of the money for yourself or your household?
(Put a zero if no money is left)

C8A Time period
(1) day (2) week (3) month (4) quarter (5) half year (6) year _____

D FOR TRADERS ONLY – COST INFORMATION

(If respondent is not a trader, skip to section F)

D1 How much do you **usually** spend to restock your business _____

D1A ... in a high-sales month? _____

D1B ... in a low-sales month? _____

D1C ... in an average-sales month? _____

D2 Please tell me about the 10 products that provide you with the most receipts from sale?

Product (Write the name of the product in this column)	Most frequent selling price per piece in the last week		Purchase price of the product		How many did you sell last month?		(7) Units of sales per unit of purchases How many of 2 are in one unit of 4
	(1) Price (Z\$)	(2) Unit	(3) Price (Z\$)	(4) Unit	(5) # of units	(6) Time Period* (1) day (2) week (3) mon	
A							
B							
C							
D							
E							
F							
G							
H							
I							
J							

E FOR NON-TRADERS -- COST INFORMATION (*manufacturers, repairs, or service enterprises*)

E1 What were the costs of your inputs or supplies in the recent past such as last week or month? (*If respondent says the cost is per day, ask if they buy this everyday!*)

Inputs/supplies (<i>write out name in this column</i>)	(1) Cost (Z\$)	(2) Per time period: 1) day 2) week 3) month 4) year
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		

F FOR ALL TYPES OF BUSINESSES – OTHER OPERATING EXPENSES

F1 What were your costs of doing business in the recent past, such as last week or last month?
(If the respondent says that the cost is per day, ask is she buys it everyday!) (Only include expenses that are used by this business)

Cost Category	(1) Cost (Z\$)	(2) Per time period 1) day 2) week 3) month 4) year
A. Paid labor (salaries)		
B. Paid labor (piece workers)		
C. Paid labor (others)		
A. Unpaid labor (value of in-kind payments)		
B. Electricity for business (only if installed for business)		
F. Water for business (only if used for business)		
G. Telephone (only if installed for business)		
H. Transport of inputs		
I. Transport of final products		
C. Rent of shop or storage space (only if separate space for business)		
K. License		
L. Costs of credit (interest costs only)		
M. Repairs/service of machines		
N. Other _____		
D. Other _____		
E. Other _____		

G SALES AND OUTPUT INFORMATION

G1 Please designate months with high, average, and low levels of sales

	(1) Jan	(2) Feb	(3) Mar	(4) Apr	(5) May	(6) Jun	(7) Jul	(8) Aug	(9) Sep	(10) Oct	(11) Nov	(12) Dec	Tot
A High													
B Avg													
C Low													
D Not in operation													

G2 What is the average sales per month (including in-kind payments) for each type of month?

A High sales month _____

B Average sales month _____

C Low sales month _____

G3 In addition to your sales, do you consume or give away part of your output?

	(1) Value (Z\$)	(2) How often? (1) per day (2) per week (3) per month (4) per year
A Consume in the household		
B Give away		

H FIXED ASSETS

H1 Please tell me about the machinery, equipment, hand tools, buildings, and land that are owned and used in this enterprise beginning with tools (*read the rest of the list to the proprietor and ask for information about each*)?

Item	(1) Years owned	(2) Years left of use	(3) Original purchase price	(4) Price if sold today	(5) If shared with other businesses or household, what % of time is it used by this business?
A Tools					
B Tools					
C Furniture or furnishings					
D Furniture or furnishings					
E Vehicles					
F Vehicles					
G Machinery or equipment					
H Machinery or equipment					
I Buildings (do not include value of house)					
J Buildings					
K Land (only if owned and used by business only)					
L Other					
M Other					

I INVENTORY

I1 What is the total value of your raw materials if you sold them today? _____

I2 What is the total value of your finished products if you sold them today? _____

I3 Can we list all of the products in your inventory and their value?

(1) Product or raw material	(2) Number of units on hand	(3) Value of one unit if sold as is	(4) Total value
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			
L			
M			
N			
O			
P			
Q			
R			
S			

Use last page of questionnaire if you need more room to do this. Do not change answer to I1 after estimating total with this worksheet.

J EMPLOYMENT IN THE BUSINESS

J1 Please tell me about all of the people that have assisted this business over the past 12 months beginning with yourself.. This would include unpaid workers.

Person	(1) Rel- ation *	(2) Mo/year	(3) Days/ mo	(4) Hrs/d ay	Salary		In-kind payment	
					(5) Amt	(6) Time unit*	(7) Amt	(8) Time unit*
A Proprietor	1							
B								
C								
D								
E								

*Relation: (1) Family (2) Non-family

*Time Unit: (1) per hour (2) per day (3) per week (4) per month (5) per quarter (6) per year

K. DEBTS AND ACCOUNTS RECEIVABLE

K1 In total, how much do your customers owe you as of today? _____

K2 How much do other traders owe you as of today? _____

K3 Do other family members or friends owe you money that they borrowed from the business? _____

K4 If you have received credit **for this business** from any of the following sources, how much do you still owe today including interest?

Credit Source	Amount Still Owed
A Family/friends	
B Moneylender	
C Formal credit institution	
D Microloan program (Zambuko SEDCO, etc)	
E Savings clubs	
F Suppliers	
F Other	

L SAVINGS

L1 If you had an excellent opportunity to invest in this business today, how much could you spend today? _____

L2 How much cash does your business have today? _____

L3 Do you have any savings **from this business?**

Location of Savings	Amount
A Bank	
B Post Office	
C Savings Clubs	
D Other	

M. PROPRIETOR INFORMATION

M1 Number of years of schooling completed _____

M2 Gender _____
(1) Female (2) Male

THANK YOU FOR YOUR TIME!!!!

Codes for Business Type, Question B2

PRODUCTION Textiles 1 Tailor/Dresses 2 Knitting 3 Weaving 4 Crocheting 5 Embroidery 6 Tie And Die 7 Other Textile Woodwork 8 Furniture Making 9 Carpentry 10 Wood Carving 11 Grass/Bamboo Cane 12 Coffin Makers 13 Other Woodworking Metal 14 Welding 15 Tinsmithing 16 Blacksmithing 17 Fence Making 18 Toy Making 19 Key Cutting 20 Other Metal Works Leather 21 Leather Work Rubber 22 Rubber Work Agricultural-related Products 23 Maize And Flour 24 Milling 25 Butcher/Abattoir 26 Bread/Biscuit/Cake Baking	27 Cooking Oil 28 Other Food Processing Beverage Production 29 Beer Brewing 30 Distilling Mineral Products 31 Brick Making 32 Block Making 33 Pottery Work 34 Tombstone Makers 35 Other Masonry Chemical and Plastics 36 Chemical 37 Soap Makers 38 Plastic Works Other Production 39 Glass Work 40 Printing Work 41 Art/Artifact Product 42 All Other Manufacture TRADE ACTIVITIES Vending 43 Vending Machines 44 Hawking 45 Vending Foods/Sweets	46 Vending Drinks 47 Vending Farm Products 48 Vending Forest-Based 49 Vending Hardware 50 Vending Garments 51 Vending Art/Artifact 52 Vending Jewelry 53 Vending Cosmetics 54 Vending Fish 55 Books And Magazines 56 Cigarettes 57 Electronics 58 Plastics/Rubbers/Bags 59 Other Vending Retail 60 Grocery 61 Retail Food 62 Retail Livestock 63 Retail Farm Products 64 Retail Hardware 65 Retail Forest-Based 66 Retail Garments 67 Retail Leather/Shoes 68 Stationers/Bookstore 69 Filling Station 70 General Trader/Deale	71 Pharmacy 72 Tuck Shop/Kiosk 73 Vehicle Spare 74 Bottlestore 75 Other Retail Wholesale 76 Wholesaler SERVICE ACTIVITIES 77 Hotel 78 Restaurant 79 Bar/Pub/Shebeen 80 Dry Cleaning 81 Hair Salon/Barber 82 Construction 83 Traditional Healer 84 Funeral Services 85 Bus/Taxi Services 86 Goods Transport 87 Renting Flats Or Rooms 88 Professionals 89 Photo Studio 90 Accounting Services Repair 91 Auto Work 92 Bike Repair 93 Electrical Repair 94 Clock/Watch/Jewelry 95 Radio/TV 96 Plumbing 97 Other Repair Work 98 Shoework/Repair 99 Other Services
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APPENDIX 4:

TRAINING MANUAL

**Assessing the Impact of Microenterprise Services
Microenterprise Survey, August 1999, Zimbabwe
Developing Alternative Measures of Profits and Net Worth
August 20, 1999**

Enumerator Instruction Manual

IDENTIFYING ENTERPRISES

Definition of an enterprise:

In this project, microenterprises (MEs) can be defined as business activities that employ three or fewer full-time equivalent employees and market at least 50 percent of their product. Employees include the proprietor, unpaid family workers, paid workers, and apprentices. Activities that involve agriculture or primary product production are excluded. You should not exclude microenterprises with three workers (one working proprietor and two full-time workers) that occasionally hire other workers.

Four Difficult Decision Points

1. Is the business a non-agricultural activity?

When you find a person engaged in the sale of agricultural products, you need to determine whether the activity should be considered an agricultural or a non-agricultural activity. If the activity is agricultural, then the person **SHOULD NOT BE INCLUDED IN THE SURVEY**. If it is non-agricultural, then the person **SHOULD BE INTERVIEWED**.

The decision rule depends on **WHETHER THE PERSON PRODUCES AND TRANSFORMS THE GOODS THAT S/HE SELLS**.

- (a) If the person is engaged in producing the agricultural products and sells them as they are, the activity is agricultural and should not be included.
- (b) If the person is engaged in producing the agricultural products, transforms them, and then sells them, the activity is included. For example, grinding wheat into flour and then selling the flour would be included.

2. Is it a production or a commerce activity?

When you see that the respondent both produces and sells goods, should you code the business as a production/manufacturing activity, or a commerce activity?

The decision rule is the following:

- (a) If the person sells goods that he/she **PRODUCES**, ...
Then the business should be classified as a **PRODUCTION/MANUFACTURING** activity.
- (b) If the person sells goods that he/she **PURCHASED**, ...
Then the business should be classified as a **COMMERCE** activity.
- (c) If the person sells **BOTH SELF-PRODUCED AND PURCHASED GOODS**, ...
Then **WHICHEVER DOMINATES** the value of stock sold is used to determine the code (if the majority of stock sold is self-produced, classify the business as production/manufacturing; if the majority of stock is purchased, classify the business as commerce).

3. Is the commerce activity vending, retail, or wholesale?

When you see a respondent clearly selling goods that he/she did not produce, do you code the business as a vending, retail, or wholesale business?

The decision rule is based on QUANTITY OF GOODS HELD FOR SALE.

(a) If the person has ONLY LIMITED DISPLAYED goods for sale (without stock to replenish the display), ...

Then the person is VENDING.

(b) If the person has enough stock to both DISPLAY AND REPLENISH the display as customers buy, ...

Then the person is RETAILING.

(c) If the person has SUFFICIENT GOODS TO SUPPLY OTHER BUSINESSES engaged in retailing those goods, ...

Then the person is WHOLESALING.

4. Is it one business or two?

When you see that the respondent is carrying out two activities, you need to decide whether to count them as two businesses or as two parts of a single diversified business.

The decision rule is based on TIME and SPACE considerations.

(a) If the two activities are undertaken in the SAME SPACE and at the SAME TIME, ...

Then the person has ONE diversified business.

(b) If the two activities are undertaken in the SAME SPACE but at TWO DISTINCTLY DIFFERENT TIMES,...

Then the person has TWO business activities.

(c) If the two activities are undertaken at the SAME TIME, but in TWO DISTINCTLY DIFFERENT PLACES, ...

Then the person has TWO business activities.

**Assessing the Impact of Microenterprise Services
Microenterprise Survey, August 1999, Zimbabwe
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August 20, 1999**

SURVEY INTRODUCTION

Hello. My name is _____. I am part of a team working for Research International Zimbabwe. We are collecting information on small businesses from 350 households in Zimbabwe over the next three weeks. Our purpose is to learn more about the businesses of people who work for themselves since earning income from your business is different than having wage or salaried employment. The results will be used to enable development planners and small-business related organizations to better understand the situation of small businesses. If you have a small business, I would like to ask you some questions about it. ALL OF THE INFORMATION WILL BE KEPT STRICTLY CONFIDENTIAL!!! No one from outside of the research team will have access to the answers you provide. We would appreciate you taking the time to provide us with accurate information.

Do you or anyone in this household have a business that you run from this house or building? Businesses can include things such as crocheting, beer brewing, basket making, and selling vegetables, as well as larger operations such as carpentry, etc.

If there are NO businesses: Thank them for their time and move to the next household.

If there is ONLY ONE business, ask the following questions:

How many people besides the proprietor work for this business (including unpaid family members)?

If there are 3 or fewer workers and you are speaking to the proprietor, fill out a questionnaire.

If you cannot speak to the proprietor, do not fill out a questionnaire.

If there is MORE THAN ONE business, ask the following questions:

If there is more than one business at this location, which business generates the most income?

How many people besides the proprietor work for that business (including unpaid family members)?

If there are 3 OR FEWER WORKERS ask:

Can I speak to the owner of that business? Fill out a questionnaire.

If there are MORE THAN 3 WORKERS, ask about the other business until you find out which one has 3 or fewer workers and generates the most income.

**Assessing the Impact of Microenterprise Services
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August 20, 1999**

Enumerator Instructions for the Questionnaires

At the top of the questionnaire, you are given the following instructions:

Use the following codes when you cannot fill in an answer:

RTA Proprietor “Refuses To Answer” the question

DNK Proprietor “Does Not Know” the answer

dash The information is “Not Applicable” to this business (record a dash “-”)

Please fill in these letters for any question that cannot be filled in on the questionnaire. This information is very important to determine which types of proxies are difficult to estimate.

Do not write in the boxed area marked “date proofed, date entered, and ID#”. These are for the data entry personnel. “Date proofed” refers to a visual check for recording errors. “Date entered” is the date the data were first entered into the computer. “ID#” is the identification number that is assigned to that particular questionnaire in the data base. Each questionnaire will be entered two times using a verification technique provided by the software package SPSS.

A1 **Enumerator**. Write your name and your numerical code was assigned to you during the training.

A2 **Supervisor**. Write your supervisor's name and his/her code.

A3 **Cluster**. Write the cluster name and the code number which is on the questionnaire.

B1 **Proprietor Name**. Record the proprietor’s name so that you can refer to him or her throughout the interview by their name. It will also be used in case you or the supervisor must return to the site during the fieldwork.

B2 **Enterprise Type**. The enterprise type is written *in words*. All non-farm, non-fishing enterprises, including market-oriented production, commerce or service activities in the compound will be included. Mining activities will **not** be included. Fill in the code in the right hand column *after* the interview. A separate code sheet is provided.

B3A **Month Started**. Record the number of the month that the business started. For example, March would be recorded as “3,” December as “12” etc.

B3B **Year Started**. Record the last two digits of the year that the business started.

B4 **Location of the Business**. Fill in the appropriate code in the right-hand column.

B5A **Number of Months of Work per Year.** Record the total number of months in a year that the ME was open during the past year.

B5B **Number of Days of Work per Month.** The total number of days per month that the business is *usually* open for business in a high, average, and low month is recorded in this column. If the proprietor says that s/he is open six days a week, record 25 days. If she is open Monday through Fridays, record 20 days. If the business is less than one year old and cannot determine what is a typical high, low, and average month, record the number of days worked per month in the space provided for the average month. In these cases, put a dash for the high and low month rows, meaning not applicable.

B5C **Number of Hours per Day:** The number of hours per day that the business typically operates in each type of month should be recorded in the right-hand column. If the business is less than one year old and cannot determine what is a typical high, low, and average month, record the number of hours worked per day in the space provided for an average month. In these cases, put a dash for the high and low month rows, meaning not applicable.

C1 **Proprietor's Estimate of Profits.** Let the proprietor estimate profits for last week or last month. Work with the proprietor to get a monthly estimate if they give you profits for the last week. Do this by asking if the week was high, low, or average. Then ask about the other weeks.

C2 **Proprietor's Estimate of Profits Last Year.** Use this question only if the business has been in operation for at least one year. Record a dash if the business is less than one year old.

C3 **Sales Last Week or Month.** Let the proprietor specify a time period and estimate his or her sales.

C4 **Total Expenses Last Week or Month.** Let the proprietor specify a time period and estimate his or her expenses.

C5 **Net Worth.** Ask for the proprietor's estimate of net worth. Do **not** provide assistance with this calculation. Read the full question so that it will remind the proprietor of all possible components of net worth. Do not spend a lot of time on this question.

C6 **Household Consumption.** Questions C6, C7, and C8 go together. For C6, you want to find out if the household consumes/uses any product of the business that is no longer available for sale. (For example, if a tuck shop owner and his/her family consume a loaf of bread from the shop, the bread is no longer available for sale.) The proprietor should estimate a value for this in Zimbabwe dollars. Be sure to verify the time period. If C6 is zero, put a dash in C6A.

C7 **Money Used by Household.** After consuming some of the products of the business, you want to know if the proprietor uses any money from the sales of the business for him or herself. If C7 is zero, put a dash in C7A.

C8 **Money Left Over.** After consuming some of the products and using money from the business, you want to know if there is any money left and how much. If C8 is zero, put a dash in C8A.

D1 **Trader Information.** If the proprietor is not a trader, skip to section E. If she is a trader, ask how much she usually pays to restock her business in high, low, and average months.

D2. **Trader Table.** Ask about the 10 products that provide the most revenue and write out the name of the product in the first column labeled “product”. In columns two and six, you want to write **in words** the type of unit that is sold and purchased. For example, a **bar** of soap is sold and it is bought in a **box** containing ten bars of soap. In column 7, you want to find out how many units in column 2 are in one unit specified in column 6. In this example, there are 10 bars of soap in one box so 10 would be recorded. As another example, if a trader sells cigarettes by the stick and buys them by the pack that has 20 cigarettes, column 7 should be recorded as 20. There are 20 cigarettes in one pack. If the proprietor sells various quantities of a product such as cooking oil, ask the proprietor which quantity is sold **most frequently** and then use the most frequently-sold quantity of the product to record data in the table. Similarly, if the proprietor sells various brands of a product such as cigarettes, ask the proprietor which brand is sold **most frequently** and then use that to record data in the table.

E1 **Nontraders.** This section is for non-traders only. (If trader, skip to section F.) You want to find out the cost of inputs or supplies to produce their products. For example, a carpenter buys wood to build furniture. You want to find out how much he pays for the wood and how often he buys it. If he gives a daily price, ask if he buys it everyday. If not, then ask more questions until you find out how often he actually buys wood. If there are too many supplies or inputs to list, record the big items and combine the smaller items on another line. Or, if that is not possible, try to get an overall estimate if possible and record that answer on one line.

F1 **Other Operating Expenses.** All proprietors should be asked these questions. Simply read the list of expenses and record how much they spend on each and how often. Again, if she says that a cost is daily, ask if she really means that she pays that amount every day of the month. You want to include only costs that the proprietors pay **for the business**. If the business is run from the porch or living space in the house, you will not consider that as a cost in the business. Similarly, for water, electricity, and telephone expenses, do not include these unless they are installed **for the business** or used heavily by the business. If anything in column (1) is a zero, column (2) should have a dash. Record zero in the “other” categories (F1N, F1O, F1P) if the proprietor does not have other operating expenses.

G1 **Sales.** In the first row of the table, labeled “high,” a one should be placed under the name of the month when the proprietor indicated that sales are high. At the end of the row, the total number of the months recorded as high sales is recorded. For example, if sales are high in October, November, and December, then a “3” would be placed in the “tot” or total column. The same procedure is used for the remaining rows. If the business is less than one year old, place a one under each month that the business operated in the average row (row B).

G2 **Average Sales per Type of Month.** Ask the proprietor to estimate how much he or she makes **in sales** during a high, low, and average month. For businesses that are less than one-year old, ask for the average sales per month and place that information in the row for average months (row B).

G3 **Consumed or Given Away.** Ask the proprietor how much s/he usually consumes/uses and the time period and how much s/he gives away. Again, verify that s/he really gives

something away or consumes it everyday if s/he answers “daily.” Use one row for one time period as needed. For example, if a tuckshop owner consumes bread daily and cooking oil monthly in his/her household, use rows A and B respectively. If several items are consumed daily, record the total value for those items in a single row.

H1 **Fixed Assets.** Read the list of fixed assets and record the appropriate information in each column. If there is more than one asset of each type listed in the first column, an extra row has been provided. **If you still need more space, write clearly on the back of the form and indicate to the supervisor that you have done this.** In the last column, try to find out if the same asset is used for other purposes besides the business or if it used by other businesses in the household. If so, then find out what percent of the time the asset is used by the business. If the proprietor does not own one of the items such as a tool, vehicle, or building, **put a dash.** Be sure to record the item in the appropriate category. For example, record tools in rows A-D which are marked tools. If a proprietor informs you that a particular asset will last a lifetime, record 30 years in column (3).

I1 **Inventory of Raw Materials.** Remind the proprietor about the definition of a raw material. These can include: cloth, thread, snaps, buttons, hooks, zippers, lace, wool, wood, bamboo, tin, nails, glue, leather, plastic, rubber, flour, sugar, salt, baking powder, oil, yeast, malt, mud, food (chicken, beans, yams, etc), stones, glass, dye, stain, etc. Then ask for the value of all raw materials combined if s/he sold them **as they are** (without transforming them into a finished product) today. Include the value of unfinished products in I1.

I2 **Inventory of Finished Products.** A finished product is the product that the proprietor actually sells such as furniture, dresses, cooked food, bricks, etc. Ask for the value of all finished products combined if the proprietor sold them today. Record a dash for traders.

I3 **Complete Inventory.** After getting the estimate of the total value from the proprietor, do a complete inventory with him or her. If you need more space, use the back of one of the sheets. Then record the total figure at the bottom of the table. **DO NOT change the proprietor’s estimate of inventory** after you do the detailed inventory.

J1 **Employment.** Ask the proprietor about each worker that “assisted” the business during the past 12 months. This includes unpaid workers who are given food, shelter, or produce from the business in exchange for their help. You should try to estimate the value of the food or shelter in column 7. Record zero for amount when necessary and a dash when not applicable.

K **Debts and Accounts Receivable.** This section should include information **about the business** only. Loans taken out for the household should not be included here. Record zero if nothing is owed. For K4 (credit source), put a dash if the proprietor doesn’t have these types of credit.

L **Savings.** Just as in the debts section, you want savings **for the business only.** Do not include general savings of the household.

M **Proprietor Information.** Ask the proprietor about his/her level of schooling and fill in the appropriate code.

TRAINING SCHEDULE

Day One

Welcome

Introduction of management team

Purpose of survey

Work and payment schedule

Introduction of enumerators

Review of training schedule for the week

Guidelines for training and fieldwork

Definition of a microenterprise and types of microenterprises

Difficult decision points

Introduction of survey

Review of questionnaire

Quiz

Day Two

Translation of questionnaire

Mock interviews

Day Three, Four, and Five

Field testing

Review of field problems

Revisions to questionnaire